

PLAN LEGEND

RIGHT OF WAY LINE

DITCH CENTERLINE

FENCE LINE

RETAINING WALL

GRAVEL LINE

GUARD RAIL LINE

RAILROAD TRACK LINE

ROAD CENTERLINE

TREE LINE

STREAM LINE

WETLAND LINE

EX SANITARY LINE

PR SANITARY LINE

AB SANITARY LINE

EX FORCEMAIN LINE

PR FORCEMAIN LINE

AB FORCEMAIN LINE

EX STORM LINE

PR STORM LINE

AB STORM LINE

EX WATER LINE

PR WATER LINE

AB WATER LINE

EX GAS LINE

PR GAS LINE

AB GAS LINE

EX STEAM LINE

PR STEAM LINE

AB STEAM LINE

UG CABLE TV LINE

AB CABLE TV LINE

UG ELECTRIC LINE

AB ELECTRIC LINE

UG FIBEROPTIC LINE

AB FIBEROPTIC LINE

UG TELEPHONE LINE

AB TELEPHONE LINE

OH ELECTRIC LINE

OH TELEPHONE LINE

OH CABLE TV LINE

SAN

STRM

W

W&G

GAS

STEAM

T

E

PO

EL

ST

SL

H.H.

H.H.

W

BM

CI

SG

CT

CD

CC

PM

SB

EB

EX SANITARY MANHOLE

EX SANITARY CLEANOUT

EX STORM MANHOLE

EX STORM CATCHBASIN

EX. WATER MANHOLE

EX. WATER VALVE

EX. WATER HYDRANT

EX. WATER SHUTOFF

EX. WATER & GAS MH

EX. GAS MANHOLE

EX. GAS VALVE

EX. GAS SHUTOFF

EX. STEAM MANHOLE

EX. TELEPHONE MANHOLE

EX. ELECTRIC MANHOLE

EX. POWERPOLE

EX. LIGHT POLE

EX. ELECTRIC VAULT

EX. ANCHOR

EX. ELECTRIC TRANSFORMER

EX. STREET LIGHT

EX. SIGNAL W/ STREET LIGHT

EX. HANDHOLE

EX. HANDHOLE

EX. TELEPHONE PEDESTAL

EX. WELL

BENCHMARK

FOUND CI MONUMENT

EX. SIGN

CONTROL POINT

EX DECIDUOUS TREE

EX CONIFEROUS TREE

EX. PARKING METER

EX. SOIL BORING

SYMBOLS

SAN

STRM

W

W&G

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STEAM

T

E

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EX SANITARY MANHOLE

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EX. SIGN

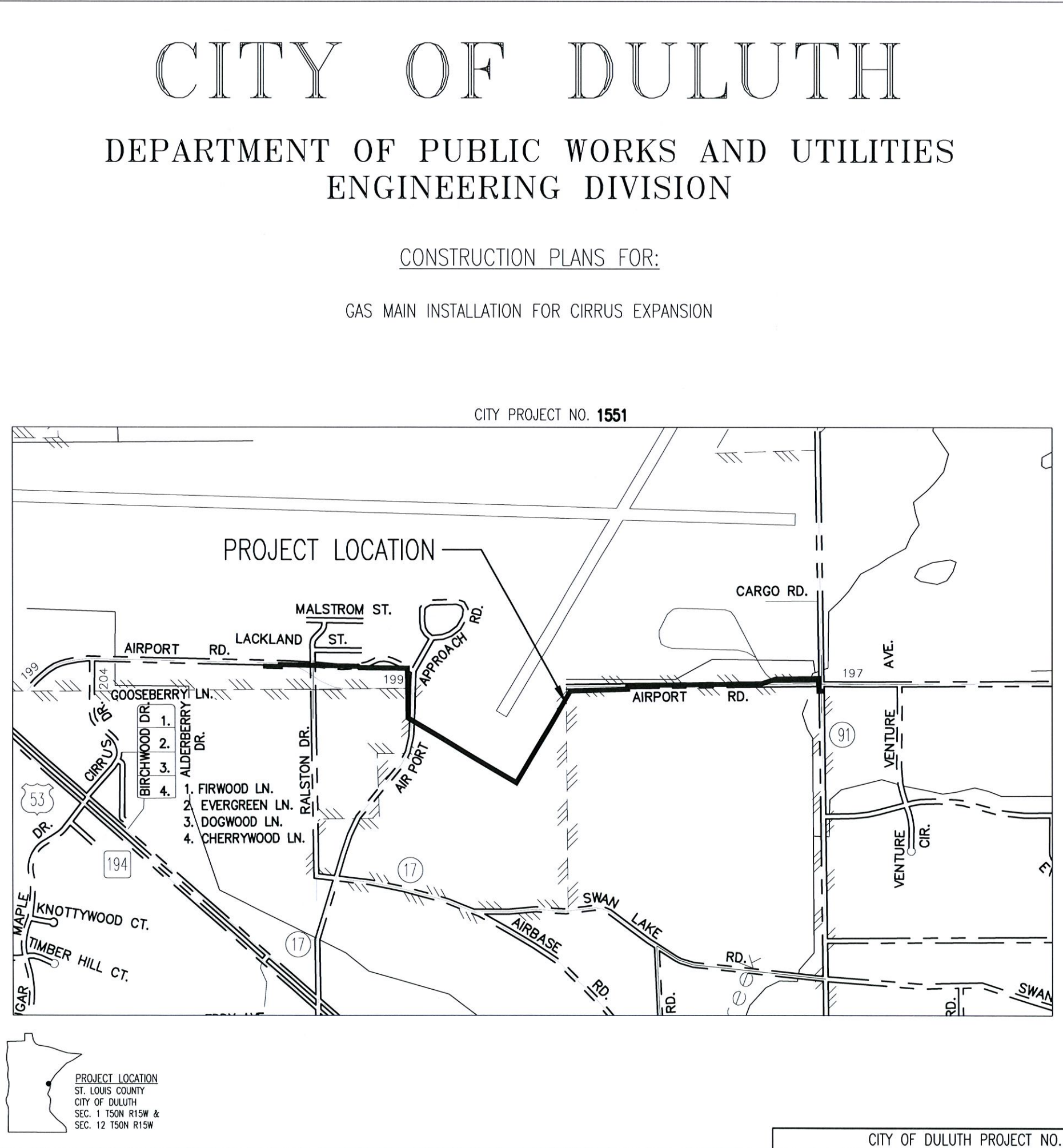
CONTROL POINT

EX DECIDUOUS TREE

EX CONIFEROUS TREE

EX. PARKING METER

EX. SOIL BORING



GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2016 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT CONSTRUCTION STANDARDS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY. AVAILABLE AT: <http://www.duluthmn.gov/engineering/standard-construction-specifications/>

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW

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PLAN & PROFILE SHEETS

THIS PLAN CONTAINS 26 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TM A. SANDERS, P.E.

PROJECT ENGINEER (TYPED OR PRINTED NAME)

Tim A Sanders

7/8/16

50401

PROJECT ENGINEER DATE LIC. NO.

CITY APPROVAL

APPROVED

CHIEF ENGINEER OF TRANSPORTATION

7/8/16

APPROVED DATE

APPROVED

CHIEF ENGINEER OF UTILITIES

7-8-16

APPROVED DATE

CITY OF DULUTH PROJECT NO. 1551

DRAWN BY: KLM

SHEET NO. 1 OF 26

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EROSION CONTROL NOTES

1. MNDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION SHALL APPLY. ALONG WITH THE (A.) CITY OF DULUTH OR (B.) DEVELOPER, THE CONTRACTOR WILL BE CO-PERMITTEE FOR THE MPCA NPDES STORM WATER CONSTRUCTION PERMIT FOR THIS PROJECT – CONTRACTORS SIGNATURE ON PERMIT IS REQUIRED.
 - 1.1. SUBMIT INITIAL EROSION CONTROL (EC) SCHEDULE AT OR BEFORE THE PRECONSTRUCTION CONFERENCE.
 - 1.2. SUBMIT EC SCHEDULE ALTERATIONS/ADJUSTMENTS WEEKLY THEREAFTER FOR ENGINEER'S APPROVAL.
2. THE CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL QUALITY CONTROL (WC) ON THIS PROJECT. CONTRACTOR SHALL PHASE/SEQUENCE THE PROJECT TO MINIMIZE EXPOSURE TO EROSION. CONTRACTOR SHALL PLACE OR OTHERWISE CONSTRUCT EROSION CONTROL AND SEDIMENT CONTAINMENT DEVICES TO MINIMIZE THE RUNOFF, TRACKING, AND SEDIMENT LOSS FROM DISTURBED AREAS OF THE PROJECT SITE.
3. DISTURBED SLOPES NOT ACTIVELY WORKED SHALL BE PROTECTED FROM SOIL EROSION WITH TEMPORARY OR PERMANENT COVER WITHIN 3 DAYS OF BEING WORKED. EROSION CONTROL BLANKET AND SOIL STAPLES SHALL BE USED.
4. AT MINIMUM, THE FOLLOWING CONTROLS WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE:
 - 4.1. EROSION CONTROL BLANKETS SHALL BE USED ON ALL SLOPES 1:3 OR STEEPER
 - 4.2. SILT FENCES SHALL BE USED IN CONJUNCTION WITH OTHER EROSION BMPS
 - 4.3. ROCK DITCH CHECKS OR APPROVED EQUAL ARE TO BE USED TO REDUCE DITCH VELOCITIES AND REDUCE EROSION
 - 4.4. STORM INLET AND OUTLET AREAS SHALL BE CONTINUOUSLY PROTECTED WITH MNDOT APPROVED DEVICES/METHODS
 - 4.5. STABILIZED CONSTRUCTION ENTRANCE, OR REUSABLE MUD MAT SHALL BE USED TO REDUCE SEDIMENT TRACKING
 - 4.6. PERMANENT VEGETATION WILL BE ESTABLISHED RIGHT AFTER TOPSOIL IS SPREAD
 - 4.7. CONTROL ALL SITE SOLID WASTE, DEBRIS, MATERIAL STORAGE AND CONCRETE WASHOUT ON SITE. NO MIGRATION OFFSITE OR INTO DITCHES/STORM SYSTEMS PERMITTED
5. ALL SLOPES AND DITCHES SHALL BE STABILIZED PRIOR TO OPENING NEW CULVERTS INTO EXISTING DRAINAGE WAYS.
6. IF ANY STOCKPILE IS TO REMAIN IN PLACE FOR MORE THAN 3 DAYS SEDIMENT AND EROSION CONTROL DEVICES SHALL BE USED.
7. WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DEWATERING SHALL BE DIRECTED THROUGH EFFECTIVE FILTERING DEVICE(S) IN ACCORDANCE WITH MNDOT SPECIFICATION 2573. USE OF APPROVED FLOCCULANT MAY BE NECESSARY.
8. THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT APPRECIABLE SOIL TRACKING ONTO ROADWAYS. APPRECIABLE SOIL, MUD, OR DEBRIS WASHED, TRACKED, OR DEPOSITED ONTO PAVED SURFACES SHALL BE REMOVED PRIOR TO THE END OF EACH WORK DAY.
9. STABILIZED CONSTRUCTION ENTRANCE(S) SHALL BE REMOVED AND AREA RESTORED AFTER GRADING IS COMPLETE.
10. THE CONTRACTOR QC PROGRAM SHALL ENSURE THAT A COMPETENT INDIVIDUAL SHALL INSPECT EROSION AND SEDIMENT CONTROL DEVICES WEEKLY AND AFTER EACH RAIN EVENT. ALL NONFUNCTIONAL DEVICES SHALL BE REPAIRED/REPLACED/CLEANED. MAINTAIN WRITTEN LOG OF ALL WEEKLY AND RAIN EVENT INSPECTIONS – INCLUDE THE CORRECTIVE ACTIONS THAT WERE TAKEN.
11. THE CONTRACTOR SHALL MAINTAIN THE CAPABILITY TO IMPLEMENT RAPID STABILIZATION METHOD 4 (MNDOT 2573.4) AT ALL TIMES. INCLUDES CAT III EROSION CONTROL BLANKET (ECB) [N. AMERICAN GREEN S150 OR APPROVED EQUAL] ALONG WITH SEED MIXTURE, FERTILIZER, AND SOIL STAPLES PER 2573-3. THE UPGRADE END OF EACH BLANKET STRIP SHALL BE BURIED AT LEAST 6 INCHES IN A VERTICAL CHECK SLOT. STAPLES SHALL BE PLACED AT SEAMS AND THROUGHOUT THE BLANKET AT A MAXIMUM SPACING IN ALL DIRECTIONS OF 2 FEET. PAYMENT ALLOWED SHALL BE PER CONTRACT OR IN ABSENCE OF CONTRACT BID PRICE IN ACCORDANCE WITH MNDOT SPECIFICATION 2575.5
12. THE CONTRACTOR SHALL BE PROACTIVE IN THEIR APPROACH TO MINIMIZING SOIL EROSION AND SEDIMENT TRANSPORT FROM THE SITE. CURRENT TECHNOLOGY FOR WEATHER FORECASTING AND WEATHER RADAR ALLOWS FOR THE CONTRACTOR TO HAVE EROSION CONTROL BMPS INSTALLED AND FUNCTIONING FOR A RAIN EVENT. ALL CONSTRUCTION SITES SHALL BE PREPARED FOR A RAIN EVENT DURING NON-WORK TIMES, I.E. WEEK NIGHTS AND WEEKENDS.
13. AS SITE CONDITIONS CHANGE, THE WORK PROGRESSES AND WEATHER CONDITIONS VARY, THE CONTRACTOR SHALL BE REACTIVE TO THESE CHANGING VARIABLES.. THEREFORE BMP INSTALLATION, CLEANING AND RELOCATION SHOULD BE ANTICIPATED IN MOST CONSTRUCTION ACTIVITIES.

CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION

TO PREVENT STORM WATER CONTAMINATION FROM OCCURRING, THE FOLLOWING BMPS WILL BE IMPLEMENTED:

1. ALL AREAS THAT ARE ROUGH GRADED MUST BE KEPT IN A SMOOTH CONDITION TO ALLOW SHEET FLOW OF STORM WATER WHEREVER PRACTICAL AND ALWAYS READY FOR SURFACE APPLICATION OF DEGRADABLE OR NON-DEGRADABLE BLANKETS, MULCH, OR OTHER PROTECTIVE COVERS.
2. A STABILIZED CONSTRUCTION ENTRANCE/EXIT WILL BE CONSTRUCTED TO REDUCE VEHICLE TRACKING OF SEDIMENTS OFF THE PROJECT RIGHT OF WAY.
3. ALL SOLID WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER OR OTHER APPROVED CONTAINMENT METHOD AT THE END OF EACH DAY. ANY ALTERNATIVE TO A METAL DUMPSTER MUST BE SUBMITTED IN WRITING FOR APPROVAL BY THE PROJECT ENGINEER. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY TO FUNCTION AS INTENDED FOR DEBRIS COLLECTION. NO CONSTRUCTION MATERIALS WILL BE BURIED ON-SITE. THE CONTRACTOR'S EROSION CONTROL SUPERVISOR WILL INSTRUCT ALL PERSONNEL REGARDING THE CORRECT PROCEDURE FOR DISPOSAL.
4. RECYCLABLE MATERIALS MUST BE SEPARATED ON-SITE AND SEGREGATED IN DESIGNATED CONTAINERS.
5. A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR WILL COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS AT A RATE NECESSARY TO MAINTAIN DESIGNED FUNCTION.
6. ALL VEHICLES ON SITE WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.
7. FERTILIZERS WILL BE STORED IN A COVERED SHED AND PARTIALLY USED BAGS WILL BE TRANSFERRED TO A SEALABLE BIN TO REDUCE THE CHANCE OF SPILLAGE.
8. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS, WHICH ARE CLEARLY LABELED.
9. SPILL KITS WILL BE INCLUDED WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES. SECONDARY CONTAINMENT MEASURES WILL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.
10. ANY ASPHALT SUBSTANCES USED ON SITE WILL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
11. ALL PAINT CONTAINERS AND CURING COMPOUNDS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM WATER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTION.
12. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEAN-UP SHALL BE READILY AVAILABLE AND BE KEPT IN AN ENCLOSED TRAILER OR SHED ON SITE. EQUIPMENT WILL INCLUDE, BUT NOT LIMITED TO, BROOMS, MOPS, DUST PANS, RAGS, GLOVES, GOGGLES, ABSORBENT (KITTY LITTER, OIL ABSORBENT BOOMS AND DIAPERS) AND BUCKETS.
13. ALL SPILLS WILL BE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM WATER CONVEYANCE SYSTEM WILL BE REPORTED TO THE MINNESOTA DUTY OFFICER AT 1-800-422-0798.
14. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE UNLESS DONE IN AN ENGINEERED CONTAINMENT SYSTEM. THE ENGINEERED SYSTEM MUST INCLUDE SITE DRAWINGS FOR THE PROJECT FILE AND WRITTEN ASSURANCE THAT THE SYSTEM WILL WORK AS DESIGNED AND LEAVE NO DISCHARGE OF CONCRETE OR CONCRETE RESIDUE POTENTIAL TO ENTER WATERS OF THE STATE.
15. FORM RELEASE OIL USED FOR CONCRETE WORK MUST BE APPLIED OVER A PALLET CONTAINING ABSORBENT TO COLLECT EXCESS LIQUID. THE ABSORBENT MATERIAL WILL BE REPLACED AND PROPERLY DISPOSED OF WHEN SATURATED.
16. DISCHARGES FROM BASIN DEWATERING OPERATIONS THAT ARE TURBID OR SEDIMENT LADEN SHALL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS CONSTRUCTED ON THE SITE TO PROVIDE TREATMENT PRIOR TO DISCHARGE TO A WATER OF THE STATE.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Tim A. Sanders

TIM A. SANDERS, P.E.
TYPE NAME

DATE: JULY 8, 2016

LIC. NO: 50401



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

CITY PROJECT NO.: 1551

STATE AID PROJECT NO.: N/A

DRAWN BY: KLM

SWPPP

SHEET NO. 2 OF 26

NPDES STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

1. THE PROJECT WILL RECONSTRUCT EXISTING CITY STREETS AND ASSOCIATED INFRASTRUCTURE INCLUDING:

1.1. GRADING AND EXCAVATION

1.2. TRENCHING FOR NEW AND RECONSTRUCTED UTILITIES

1.3. NEW CURB AND GUTTER

1.4. NEW BITUMINOUS AND CONCRETE PAVEMENT

1.5. TURF ESTABLISHMENT.
2. THE TOTAL LAND AREA ANTICIPATED TO BE DISTURBED BY THE PROJECT (EXCLUSIVE OF BORROW AND DISPOSAL AREAS) IS 0.1 ACRES.
3. CONSTRUCTION DATES ARE ESTIMATED TO BE FROM JUNE 29, 2015 TO NOVEMBER 1, 2015.
4. THE RECEIVING WATER FOR STORM WATER FROM THE PROJECT INCLUDES EXISTING STORM SEWER SYSTEMS LEADING TO MILLER CREEK AND LAKE SUPERIOR.
5. CITY OF DULUTH MAINTENANCE IS RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE STORM WATER SYSTEM.
6. CONTACTS:

OWNER & RECORDS RETENTION:

CITY OF DULUTH

ENGINEERING DEPARTMENT

211 CITY HALL

DULUTH, MN 55802

(218) 730-5200

THE CITY OF DULUTH PROJECT ENGINEER IS: TIM A. SANDERS

PROJECT ENGINEER

211 CITY HALL

DULUTH, MN 55802

(218) 730-5066

tsanders@duluthmn.gov

TIMING OF BMP INSTALLATION

1. THE EROSION AND SEDIMENTATION CONTROL BMPs SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ON SITE, AND SHALL MEET THE NPDES PERMIT PART IV CONSTRUCTION ACTIVITY REQUIREMENTS.
2. TEMPORARY PERIMETER CONTROL BMPs WILL BE INSTALLED BEFORE ANY UP GRADIENT SOIL DISTURBANCE OCCURS.
3. PERMANENT AND TEMPORARY SEDIMENT TRAPS AND BASINS (IF APPLICABLE) WILL BE CONSTRUCTED BEFORE ANY CONVEYANCE OR DEWATERING OCCURS.
4. TOPSOIL AND TEMPORARY EROSION CONTROL BMPs SHALL BE PLACED WITHIN 3 DAYS OF COMPLETION OF EMBANKMENT
5. PLACEMENT OF RIPRAP SHALL BE COMPLETED WITHIN 24 HOURS OF CULVERT PLACEMENTS AND DONE IN ONE CONTINUOUS OPERATION.
6. ONCE CONSTRUCTION ACTIVITY CEASES FOR 3 DAYS OR MORE IN AN AREA, THAT AREA WILL BE STABILIZED WITH TEMPORARY OR PERMANENT BMPs FOR EROSION.

CALCULATIONS

TOTAL PROJECT AREA = 1.0 ACRES

DISTURBED AREA = 0.1 ACRES

POST CONSTRUCTION IMPERVIOUS AREA = 0.01 ACRES

EXISTING IMPERVIOUS AREA = 0.01 ACRES

IMPERVIOUS NET = 0.0 ACRES (INCREASE/DECREASE)

SOILS INFORMATION: N/A

CONSTRUCTION NOTES

- CONSTRUCTION SHALL BE GOVERNED BY THE MNDOT STANDARD SPECIFICATIONS, CITY OF DULUTH STANDARD CONSTRUCTION SPECIFICATIONS AND SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION.
- THE CONTRACTOR SHALL KEEP WRITTEN INSPECTION AND MAINTENANCE LOGS (INCLUDING ALL CLEAN OUT AND CORRECTIVE ACTIONS) IN ACCORDANCE WITH THIS SWPPP AND ALL PERMITS.

TMDL IMPLEMENTATION PLANS CONTAINING STORM WATER REQUIREMENTS

NO TMDL IMPLEMENTATION PLANS CURRENTLY EXIST FOR THE RECEIVING WATERS ON THIS PROJECT.
THE ST. LOUIS RIVER IS LOCATED ?? MILES FROM THE PROJECT AND IS AN MPCA LISTED IMPAIRED WATER.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	TITLE	LOCATION
SUMMERY OF PERVIOUS & IMPERVIOUS	SWPPP	SHEET 3
DIRECTION OF FLOW/DRAINAGE AREA	N/A	N/A
RECEIVING SURFACE WATERS	SWPPP	SHEET 3
NO DISTURBANCE AREAS & AREAS OF CONSTRUCTION	SWPPP	SHEET 3
DRAINAGE STRUCTURES	EROSION CONTROL	SHEETS 5-7
DRAINAGE TABULATIONS	N/A	N/A
EROSION CONTROL TABULATIONS	N/A	N/A
EROSION CONTROL SHEETS	EROSION CONTROL	SHEETS 5-6
EROSION CONTROL DETAILS	EROSION CONTROL	SHEET 7
SEDIMENT CONTROL PRACTICES	SWPPP	SHEETS 2-3
FINAL STABILIZATION	N/A	N/A
SEDIMENT BASIN (POND) TABULATIONS	N/A	N/A
POND SHEETS (SEDIMENT BASINS)	N/A	N/A
LOCATION OF PONDS	N/A	N/A

SWPPP IMPLEMENTATION CONTACTS

AGENCY	PERMIT	NAME	PHONE/E-MAIL
CONTRACTOR'S EROSION CONTROL SUPERVISOR		TO BE DETERMINED	TBD
MPCA	NPDES	JIM DEXTER	(218)529-6253 james.dexter@pcs.state.mn.us
SWCD	WCA	RC BOHEIM	(218)723-4629 RC.Boheim@southstlouisswcd.org
MNDNR WATERS AREA HYDROLOGIST	N/A	PATRICIA FOWLER	(218)834-6621 patricia.fowler@dnr.state.mn.us
CORPS OF ENGINEERS	SECTION 404	DARYL WIERZBINSKI	218-834-6630 daryl.w.wierzbinski@mvp02.usa.ce.army.mil
STATE DUTY OFFICER	N/A	MPCA	800-422-0798
CITY REVIEW	N/A	TOM JOHNSON	(218) 730-5103 tajohnson@duluthmn.gov
LGU-CITY OF DULUTH	N/A	KYLE DEMING	(218)730-5580 kdeming@duluthmn.gov
CITY OF DULUTH SOLID WASTE OFFICER	N/A	KAREN O'DONNELL	(218)730-5148 kodennell@duluthmn.gov

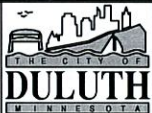
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GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

CITY PROJECT NO.: 1551

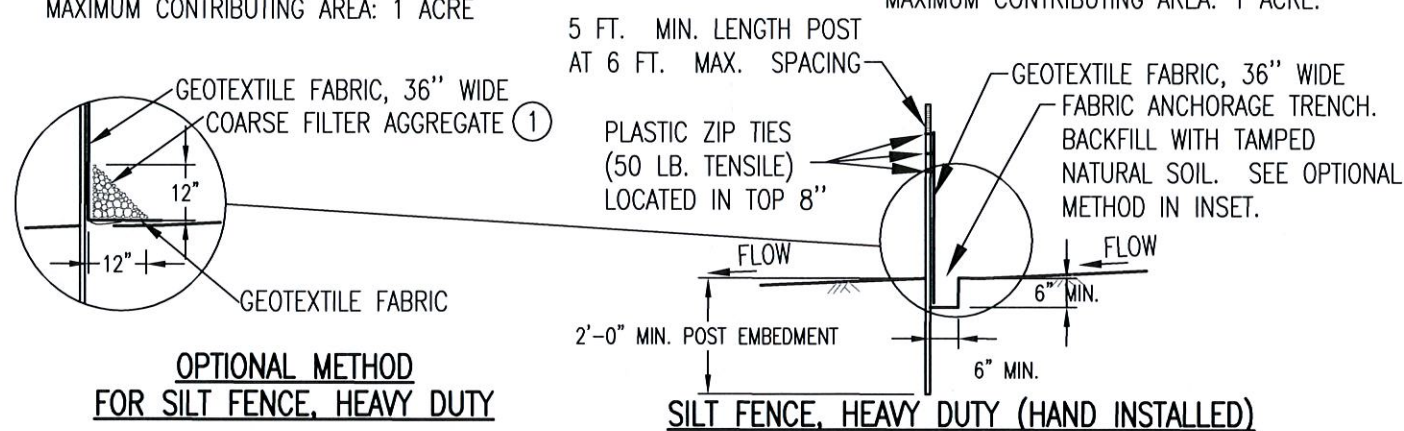
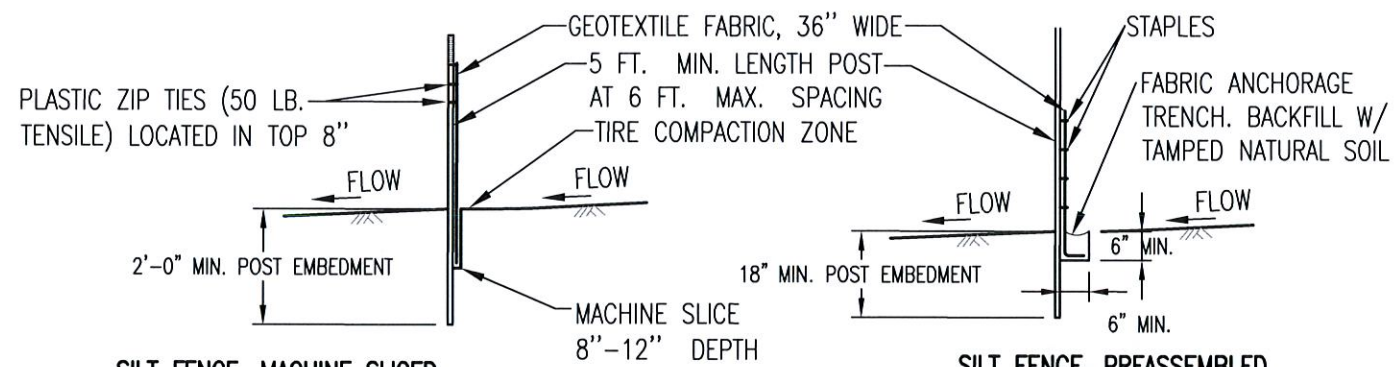
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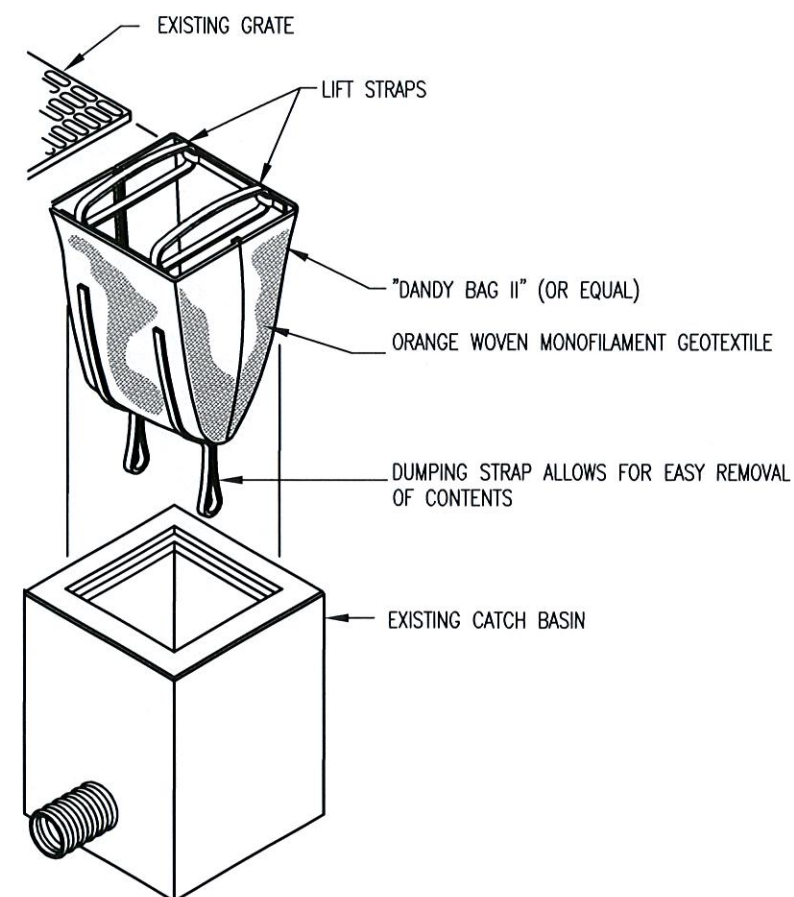
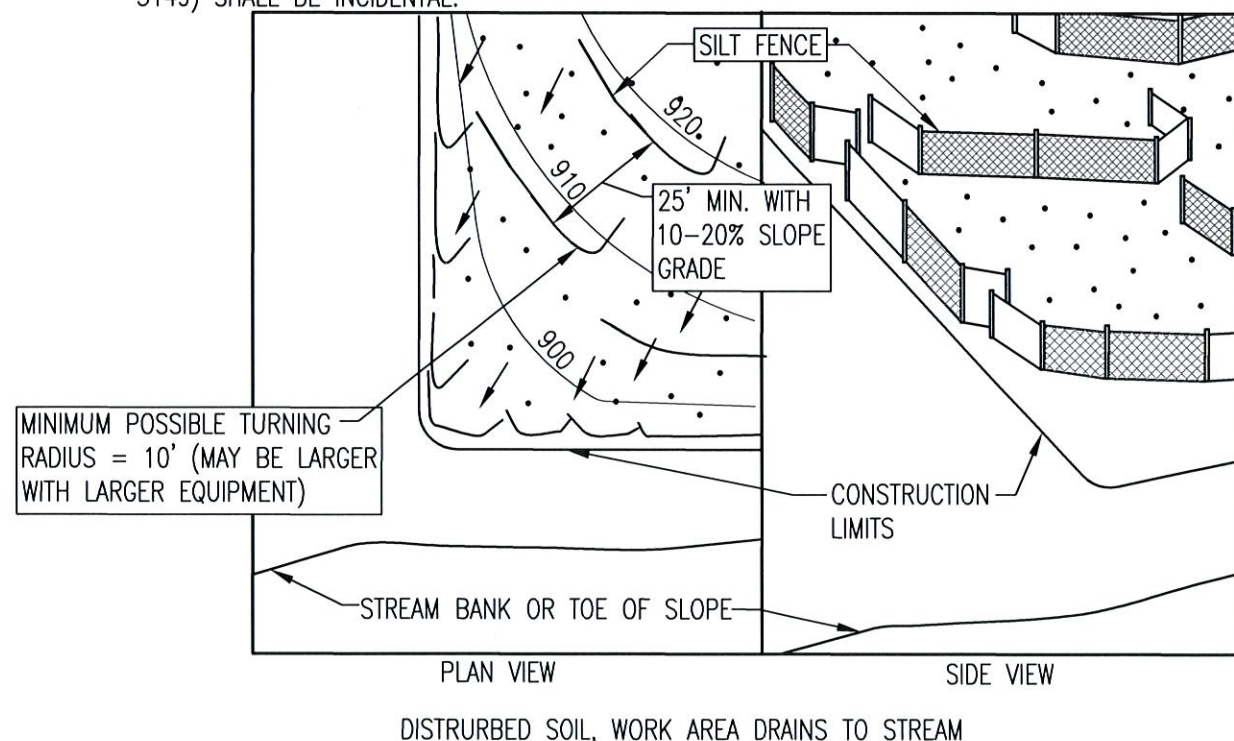
SWPPP

SHEET NO. 3 OF 26

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NOTES: SEE SPECS. 2573, 3149 & 3886.
① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.



MAINTENANCE REQUIRED: FOLLOWING EACH RUNOFF EVENT, MONITOR AND, IF NECESSARY, REMOVE ALL ACCUMULATED SEDIMENT & DEBRIS FROM THE UNIT AFTER THE HEIGHT OF THE ACCUMULATED MATERIAL REACHES 1/3 OF THE HEIGHT OF THE SEDIMENT BAG.

INLET PROTECTION CATCH BASIN SEDIMENT BAG INSERT TYPE DETAIL

NO SCALE

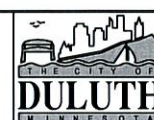
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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
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GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

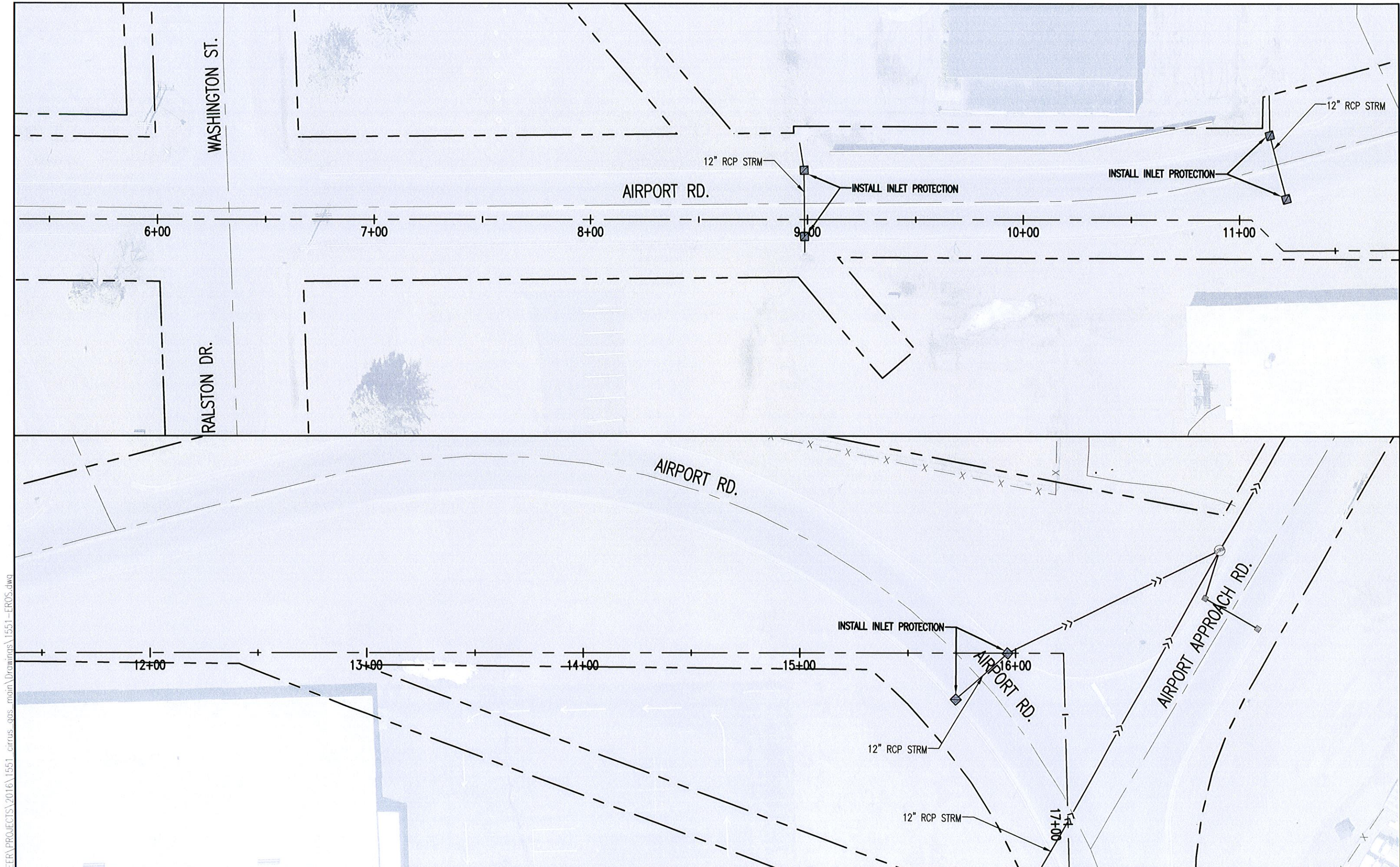
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STATE AID PROJECT NO.: N/A

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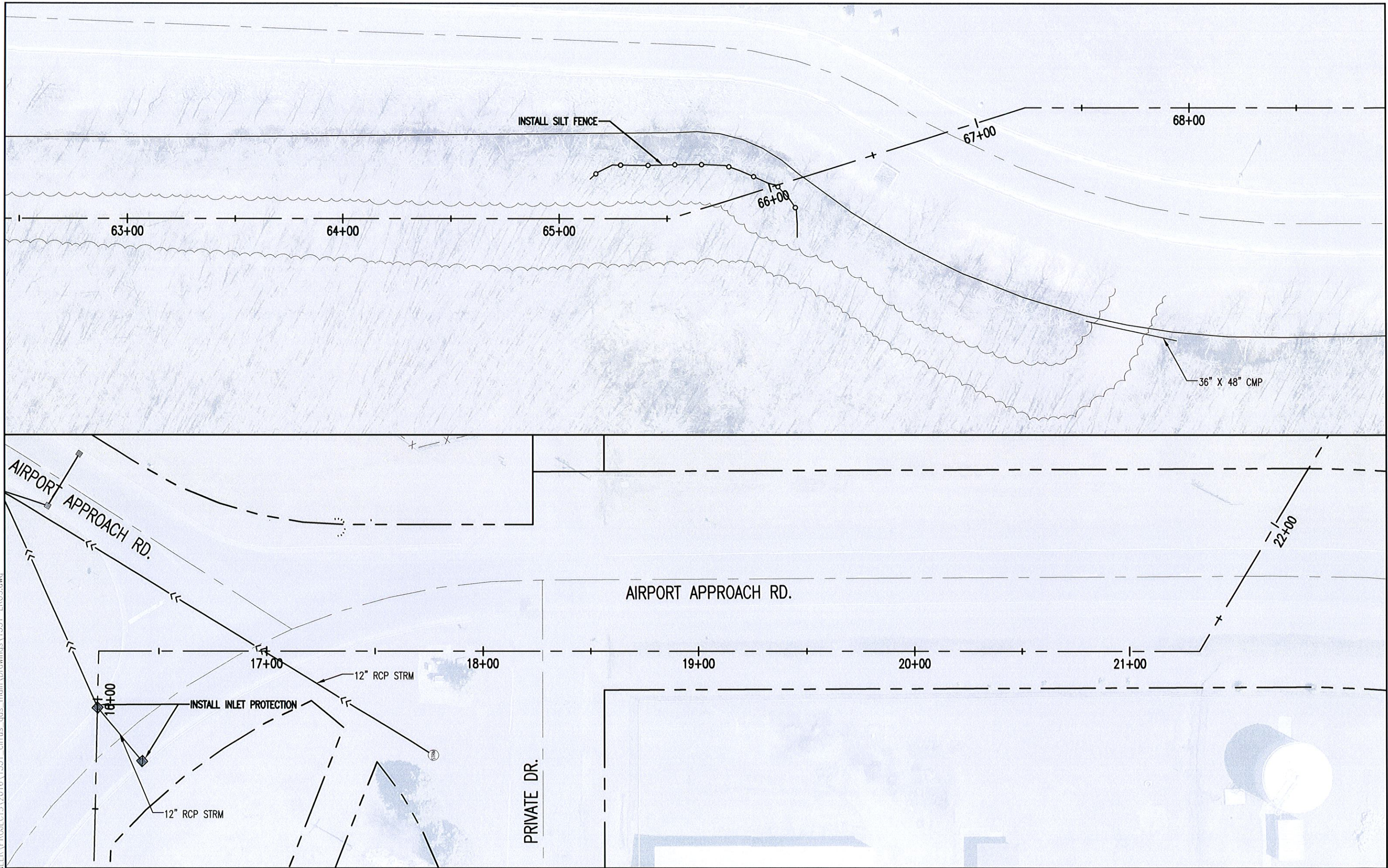
SWPPP

SHEET NO. 4 OF 26



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SIGNATURE: <i>Tim A. Sanders</i>		LIC. NO: 50401					CITY PROJECT NO.: 1551		STATE AID PROJECT NO.: N/A	
									SHEET NO. 5 OF 26	



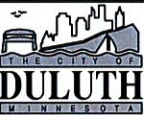
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TYPE NAME

DATE: JULY 8, 2016

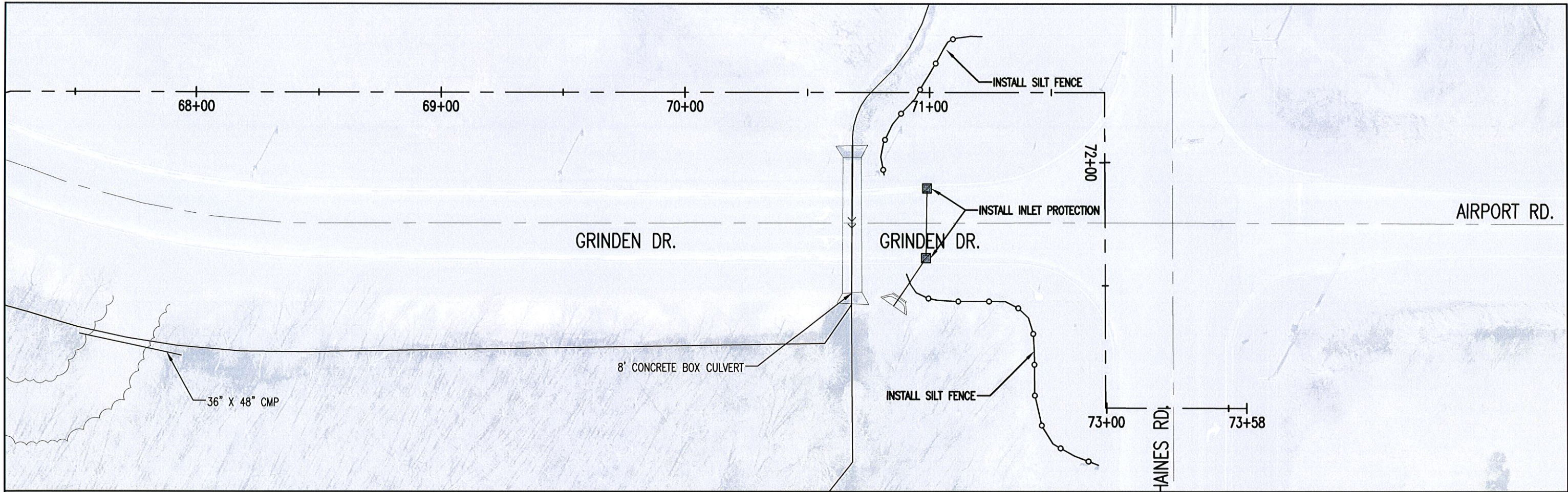
LIC. NO.: 50401



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION	
CITY PROJECT NO.:	1551
STATE AID PROJECT NO.:	N/A

DRAWN BY:	KLM
EROSION CONTROL PLAN	
SHEET NO.	6 OF 26



I:\PWU\ENGINEER\PROJECTS\2016\1551_cirrus_gas_main\Drawings\1551-EROS.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.			DATE: JULY 8, 2016		GAS MAIN INSTALLATION FOR CIRRUS EXPANSION		DRAWN BY: KLM	
SIGNATURE: <u>Tim A. Sanders</u>		TIM A. SANDERS, P.E. TYPE NAME		LIC. NO: 50401			EROSION CONTROL PLAN	
					CITY OF DULUTH ENGINEERING DIVISION 411 W. 1ST ST. STE. 211 DULUTH, MN 55802		CITY PROJECT NO.: 1551	
							STATE AID PROJECT NO.: N/A	
							SHEET NO. 7 OF 26	

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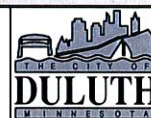
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Tim A. Sanders

TIM A. SANDERS, P.E.
TYPE NAME

DATE: JULY 8, 2016

LIC. NO: 50401



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

CITY PROJECT NO.: 1551

STATE AID PROJECT NO.: N/A

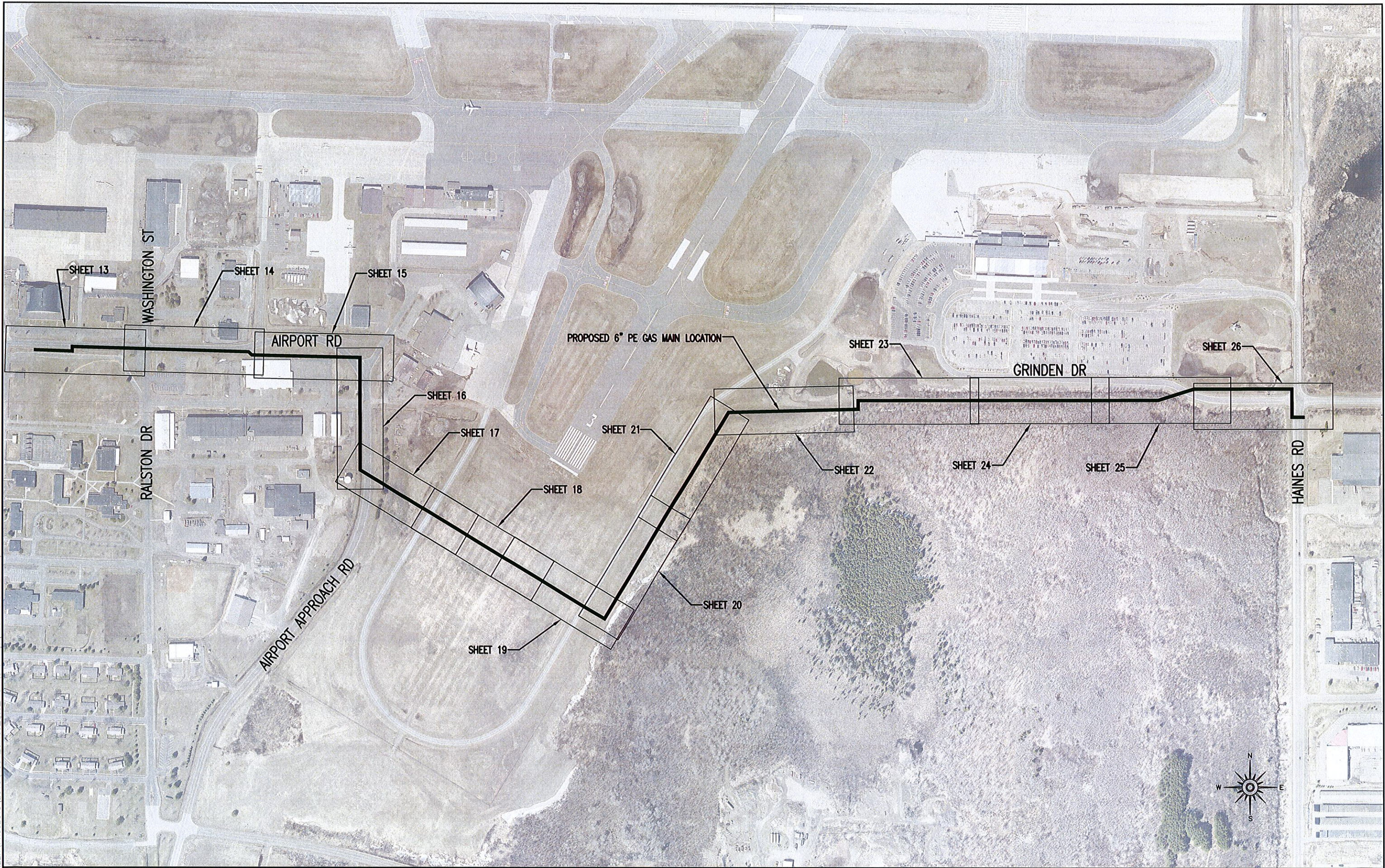
DRAWN BY: KLM

TRAFFIC CONTROL PLAN

SHEET NO. 8 OF 26



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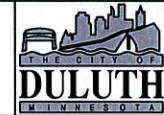
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Tim A. Sanders*

TIM A. SANDERS, P.E.
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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
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GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

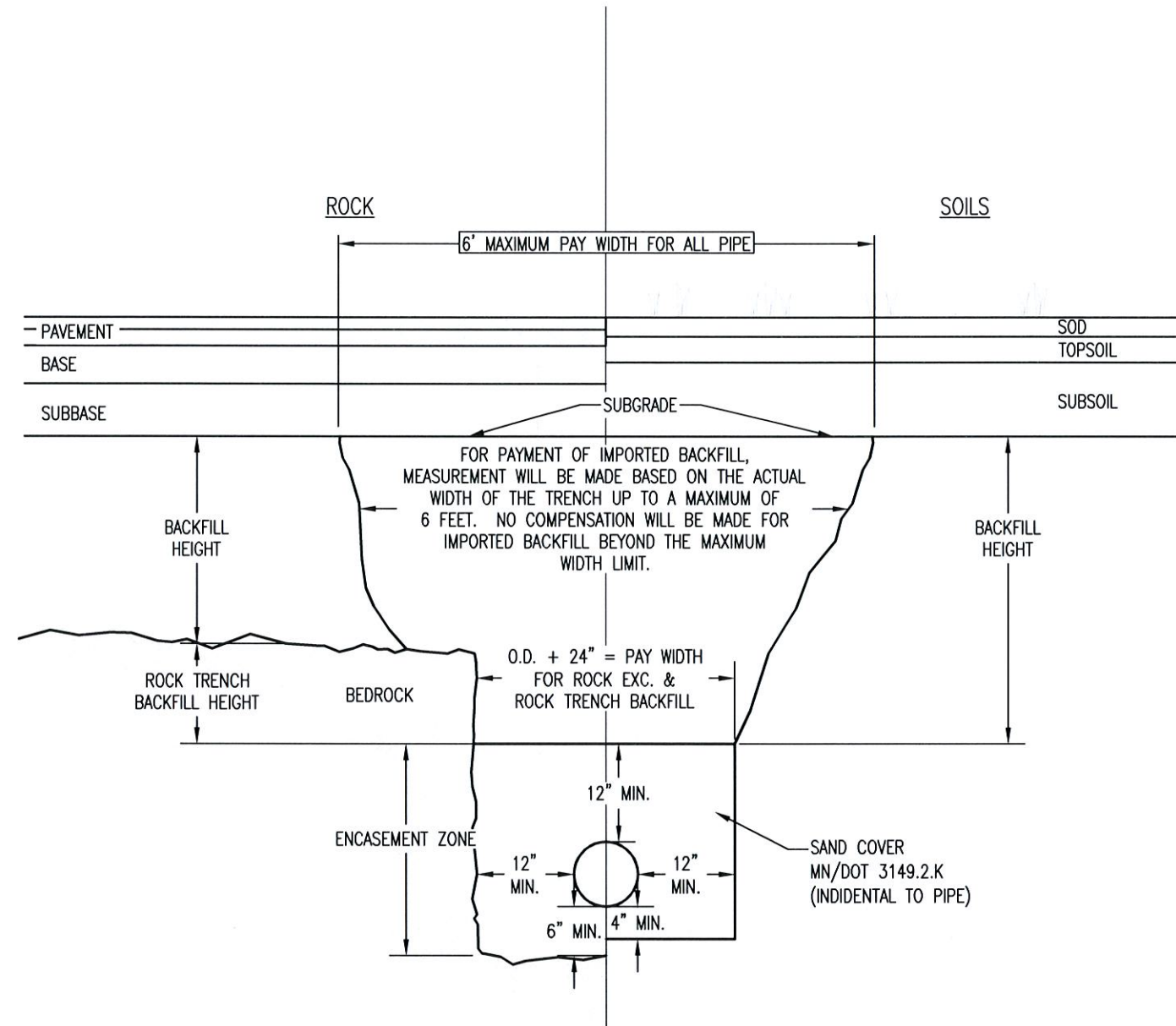
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STATE AID PROJECT NO.: N/A

DRAWN BY: KLM

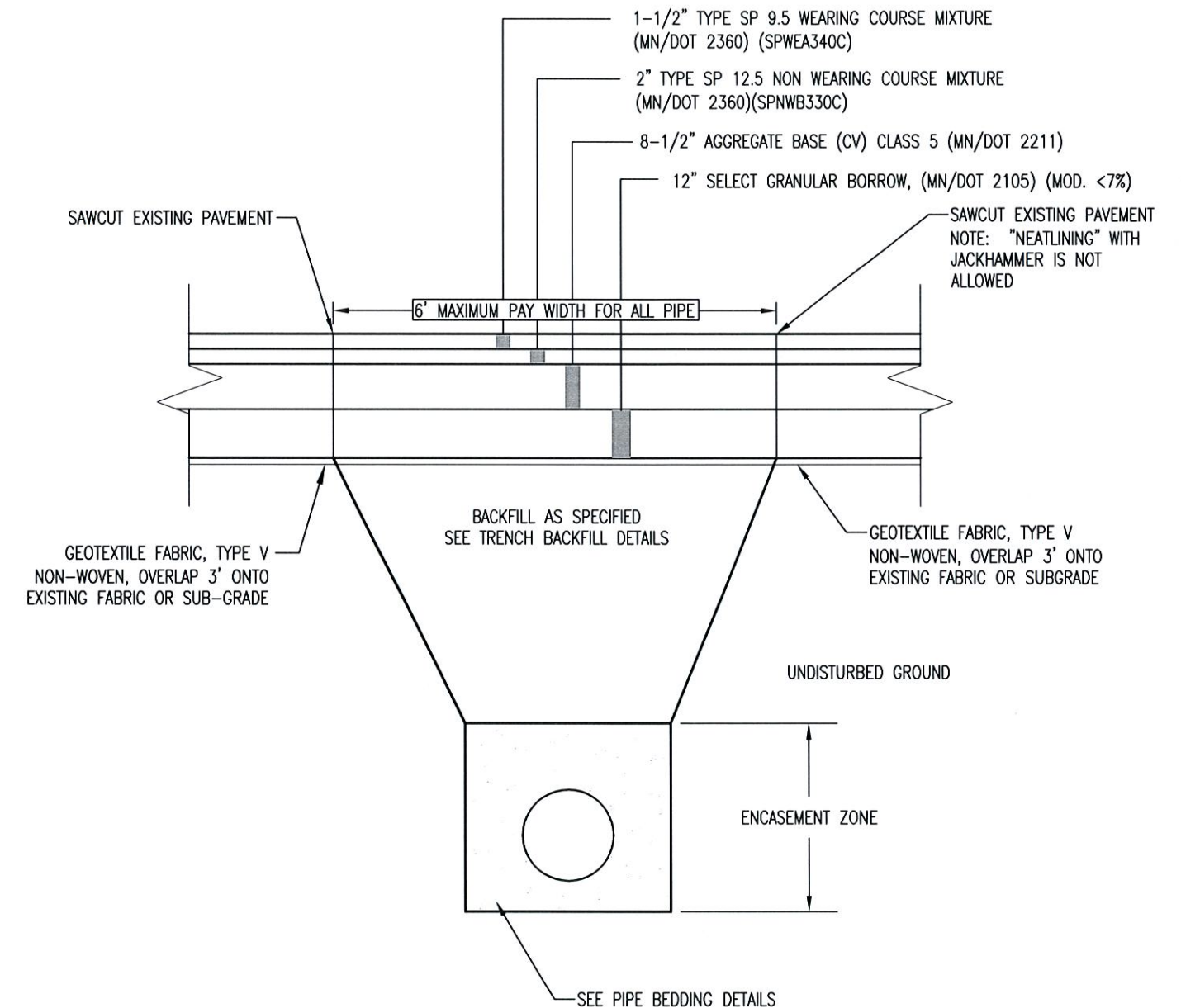
PLAN & PROFILE LAYOUT OVERVIEW

SHEET NO. 9 OF 26



NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.



ALL STEEL & 4" AND LARGER PE GAS MAIN BEDDING DETAIL

REVISED/APPROVED 1/8/2016

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

STREET RESTORATION OVER TRENCH

REVISED/APPROVED 1/8/2016

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE: JULY 8, 2016

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

CITY PROJECT NO.: 1551

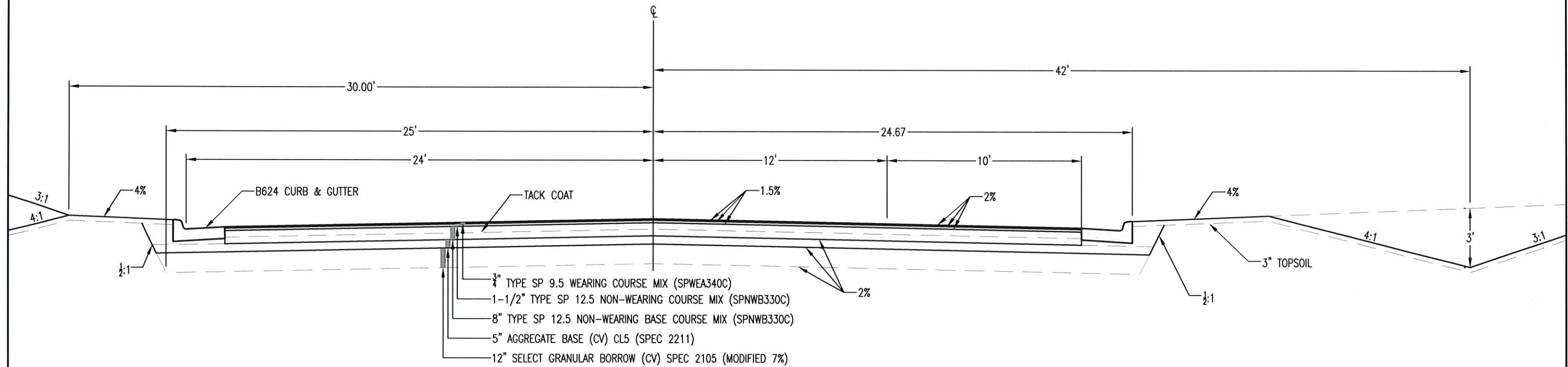
STATE AID PROJECT NO.: N/A

DRAWN BY: KLM

CONSTRUCTION DETAILS

SHEET NO. 10 OF 26

TYPICAL SECTION
HAINES ROAD



ALL DITCH BOTTOMS AND TOPS OF
BACKSLOPES ARE TO BE ROUNDED.

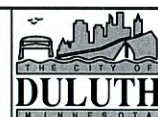
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GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

CITY PROJECT NO.: 1551

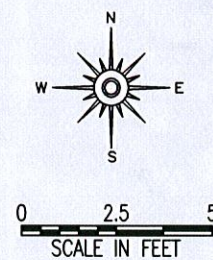
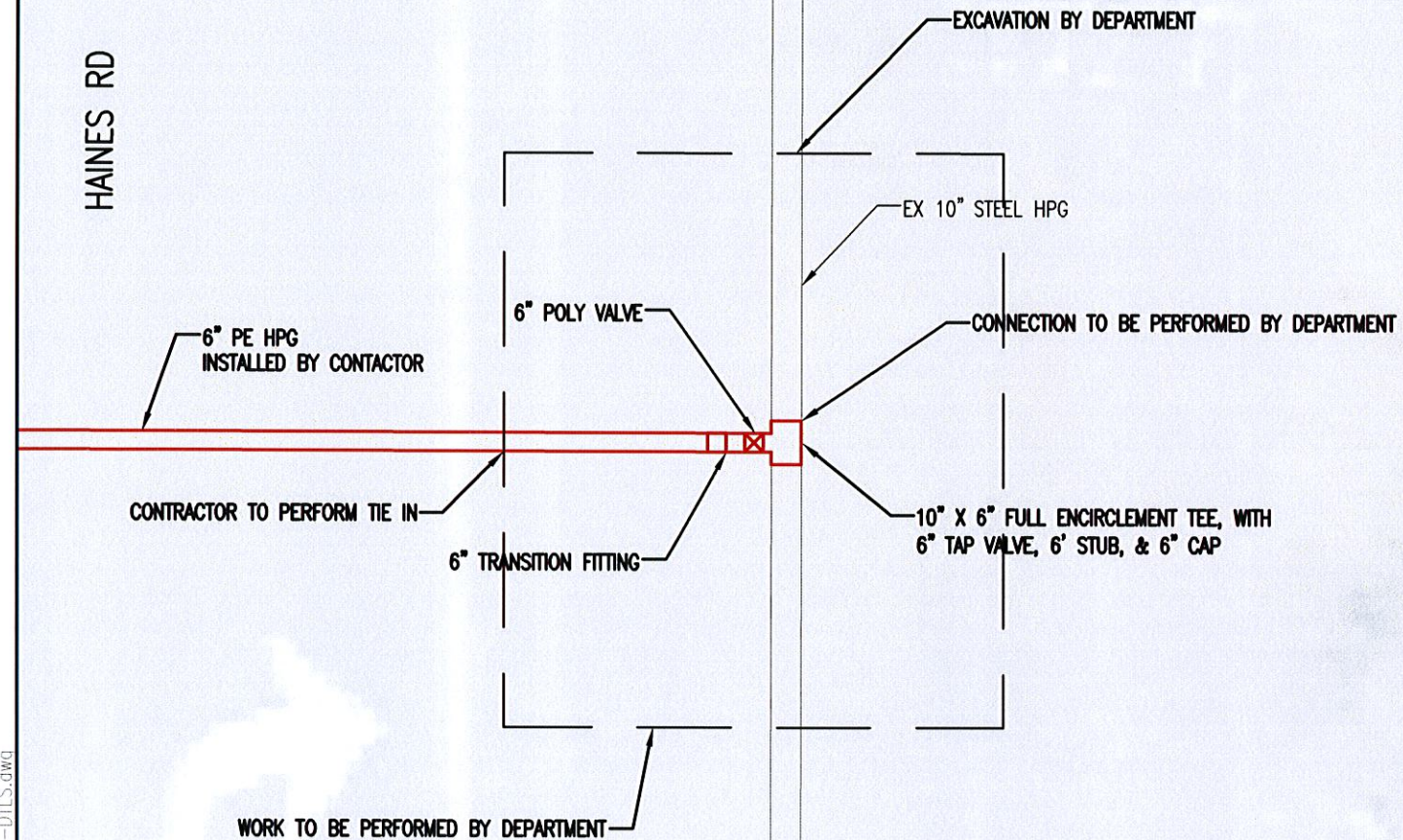
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DRAWN BY: KLM

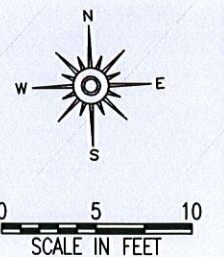
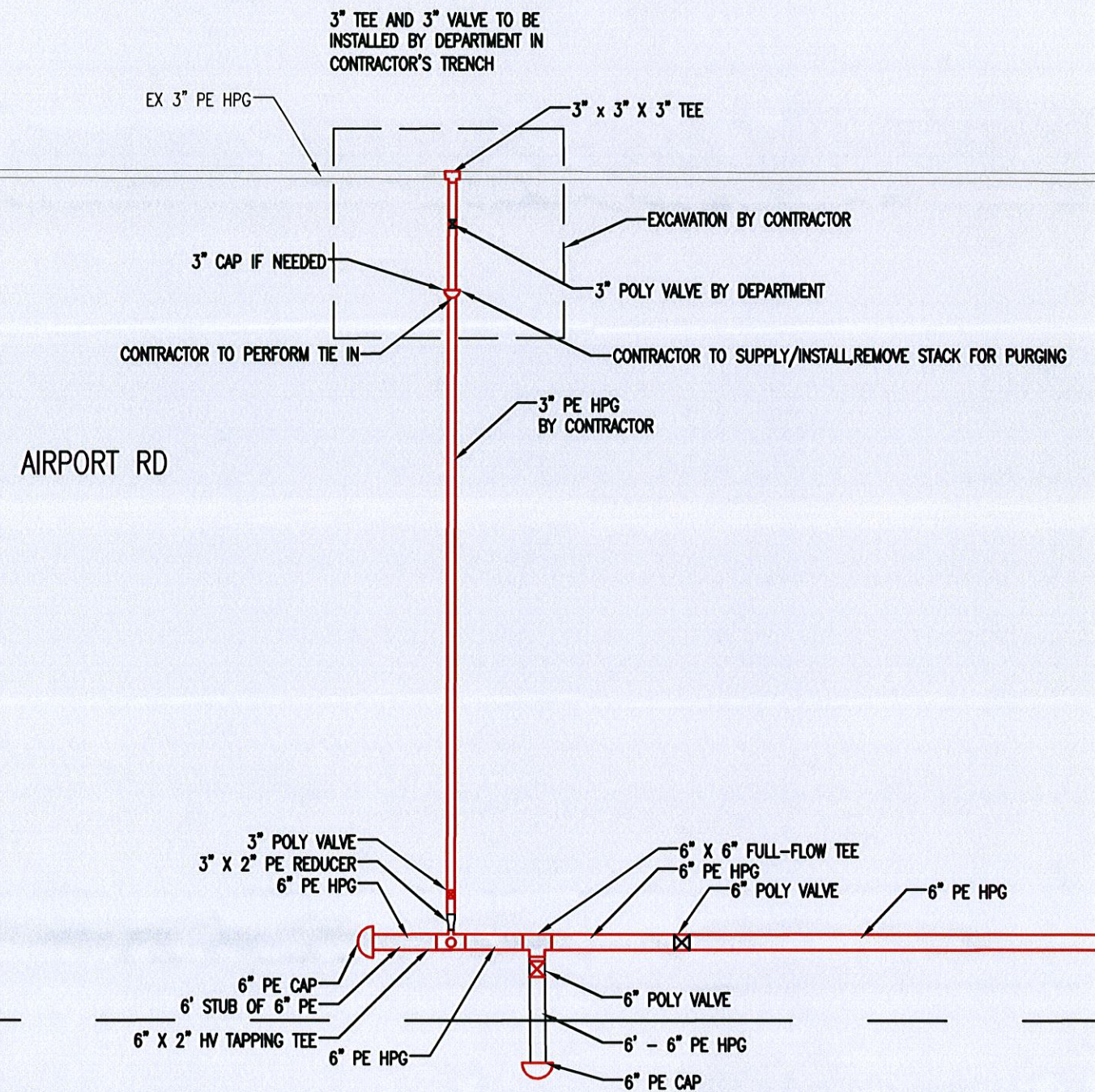
CONSTRUCTION DETAILS

SHEET NO. 11 OF 26

CONNECTION DETAIL #1



CONNECTION DETAIL #2



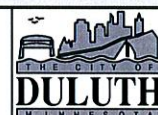
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SIGNATURE: *Tim A. Sanders*

TIM A. SANDERS, P.E.
TYPE NAME

DATE: JULY 8, 2016

LIC. NO: 50401



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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

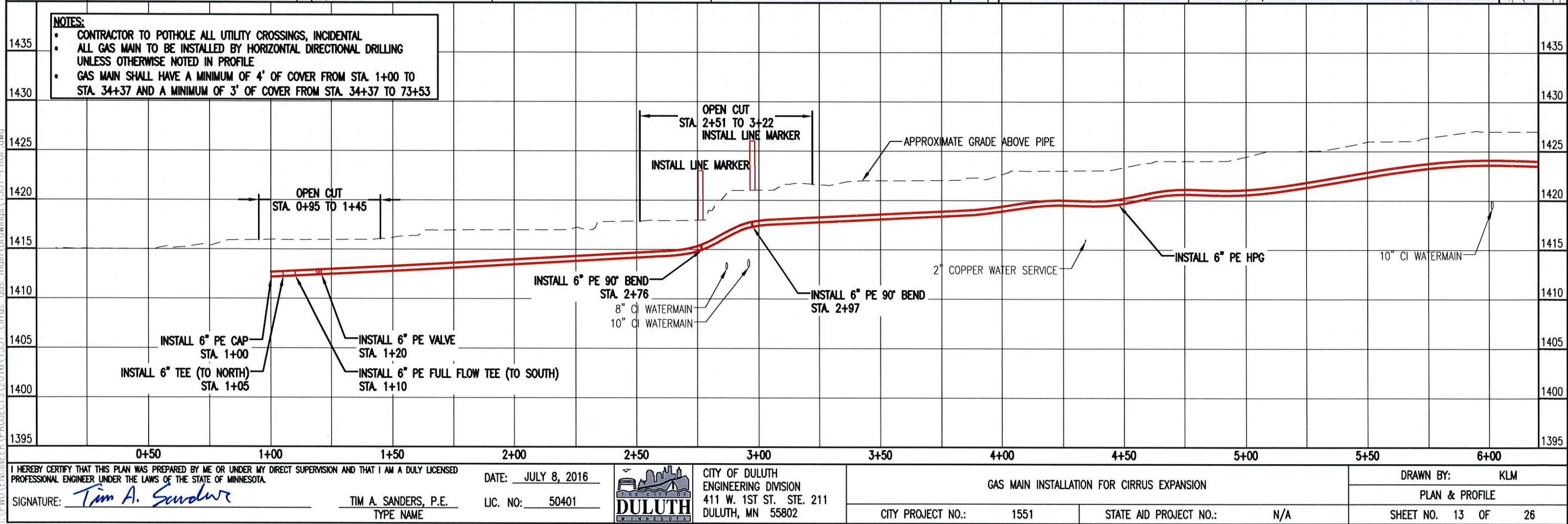
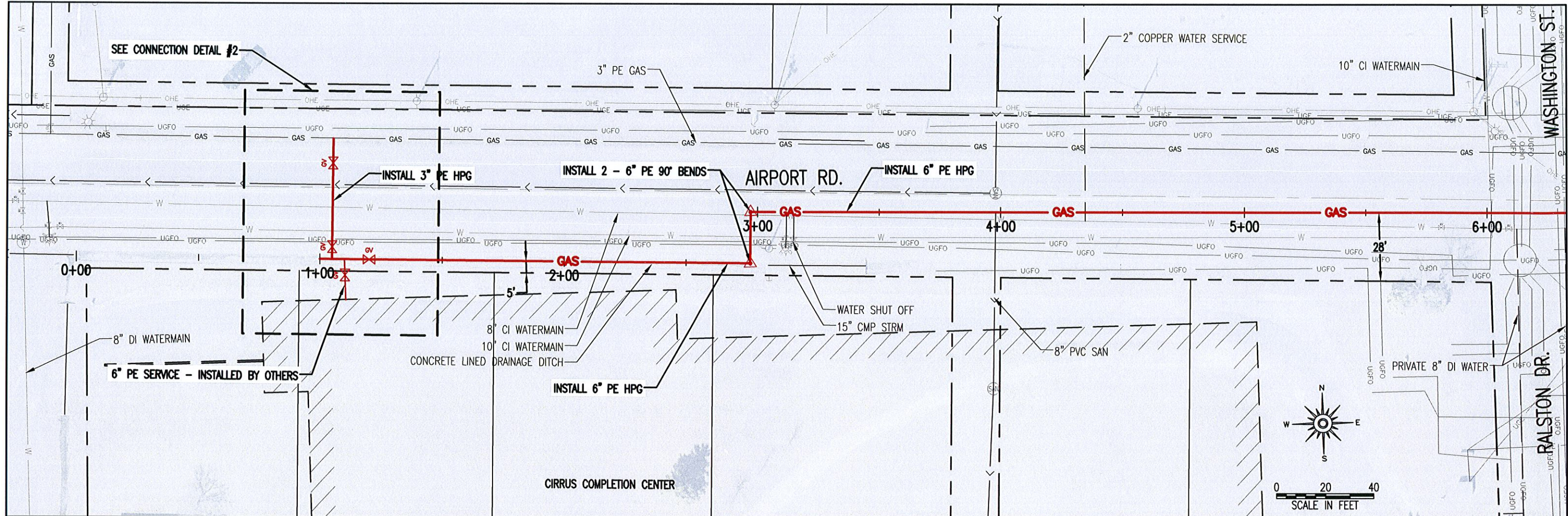
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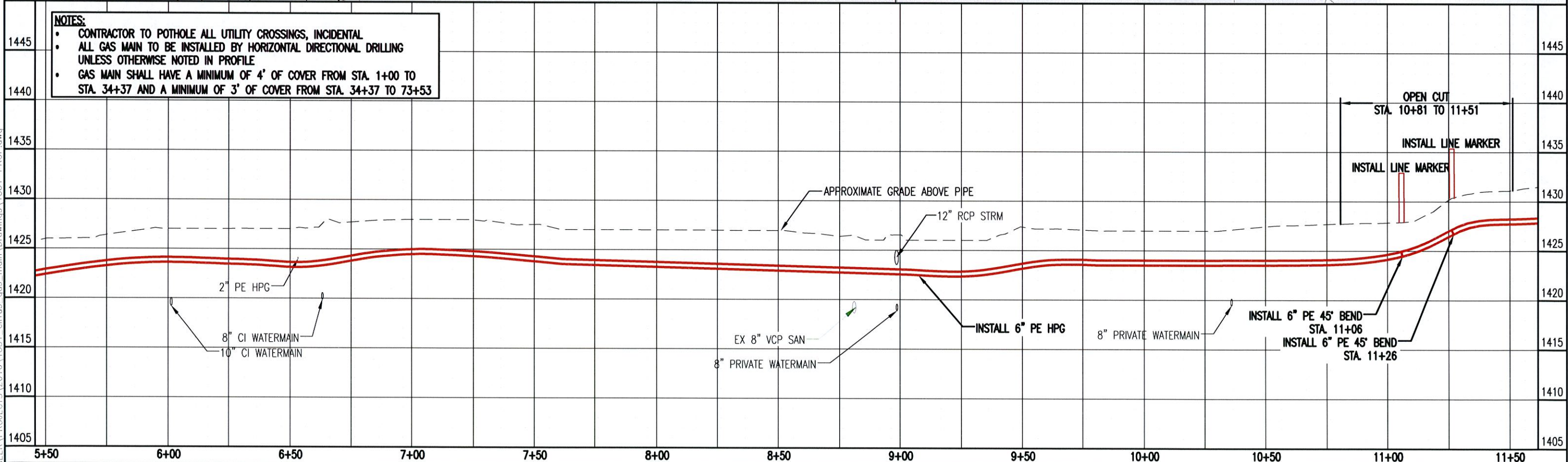
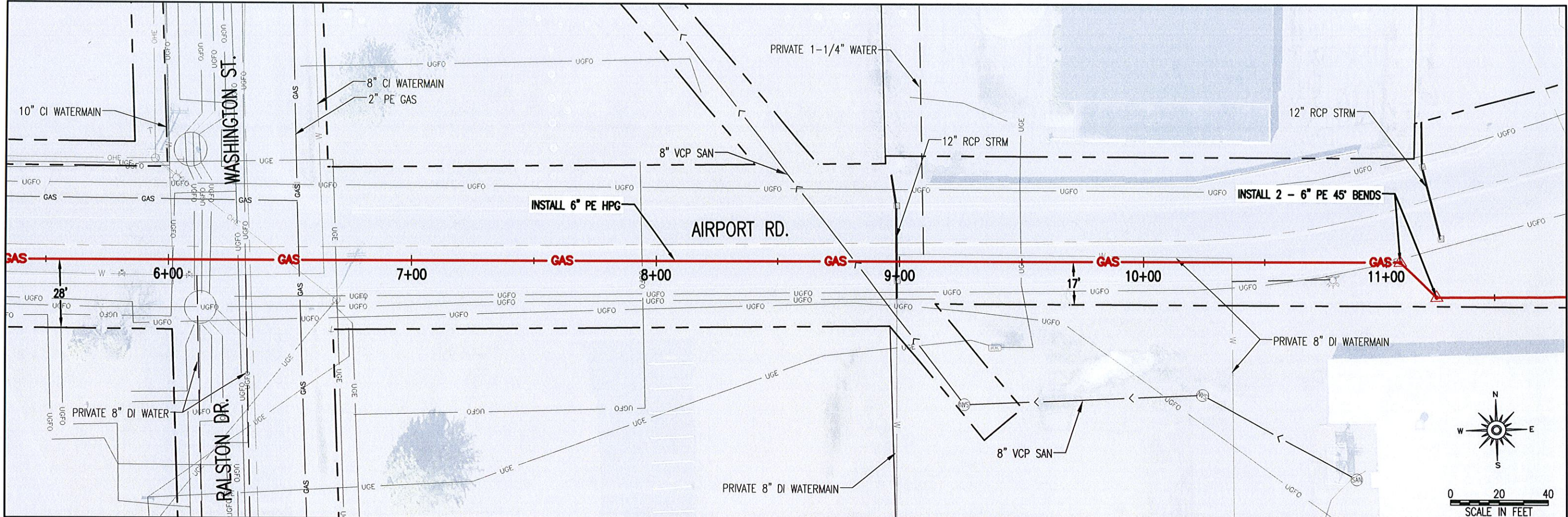
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DRAWN BY: KLM

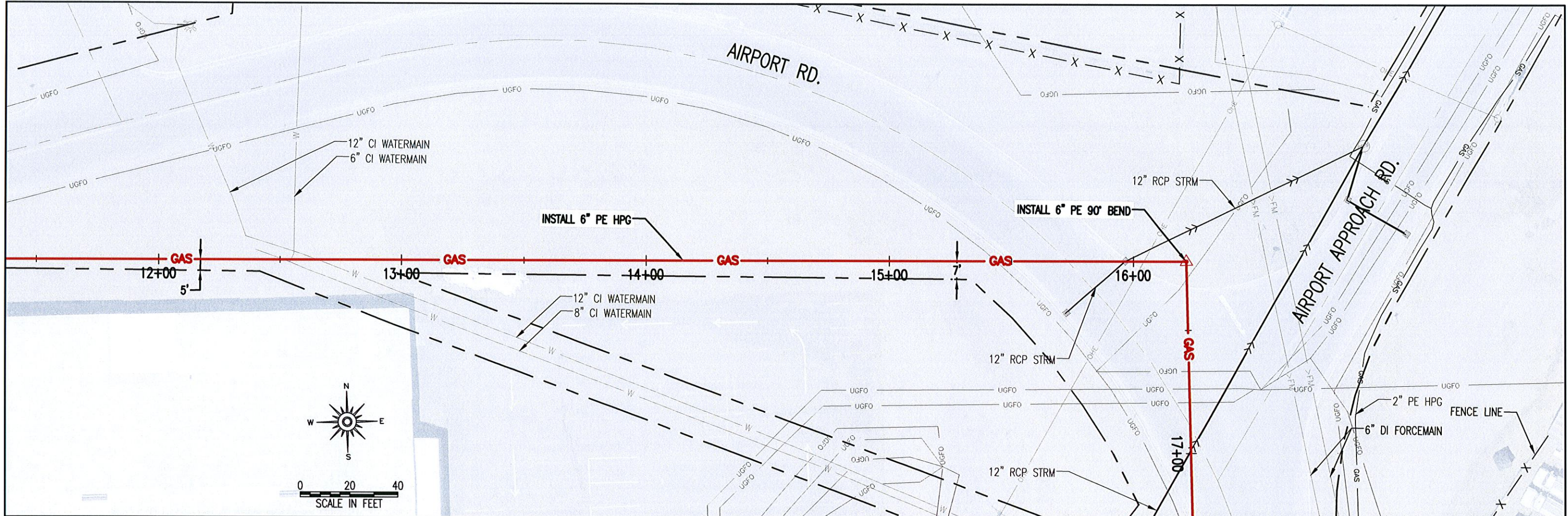
CONNECTION DETAILS

SHEET NO. 12 OF 26

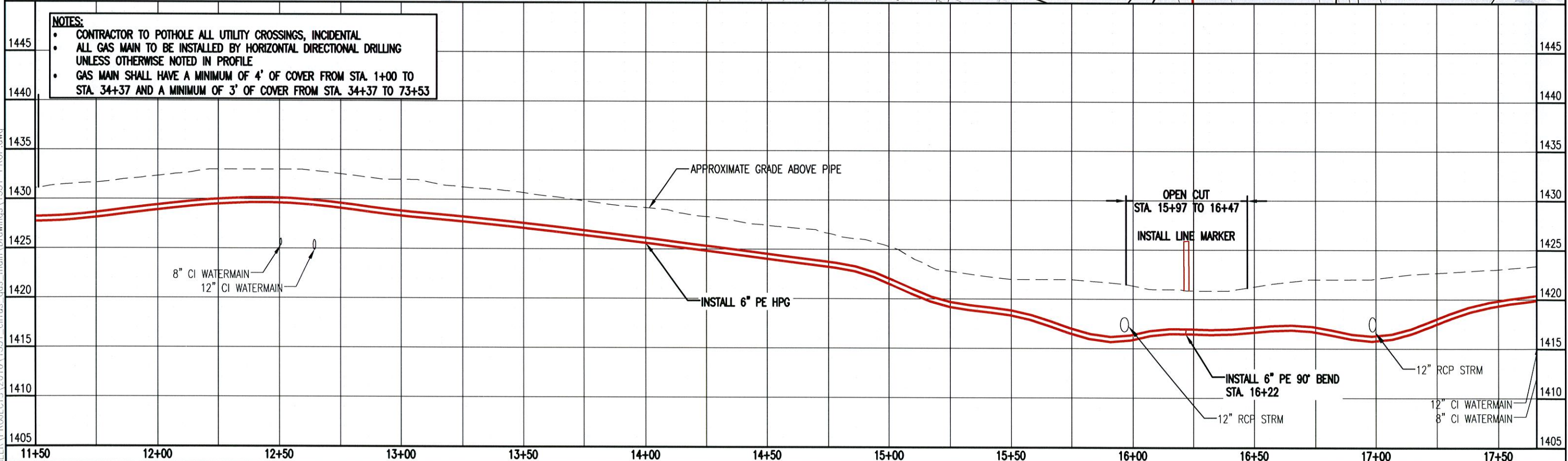




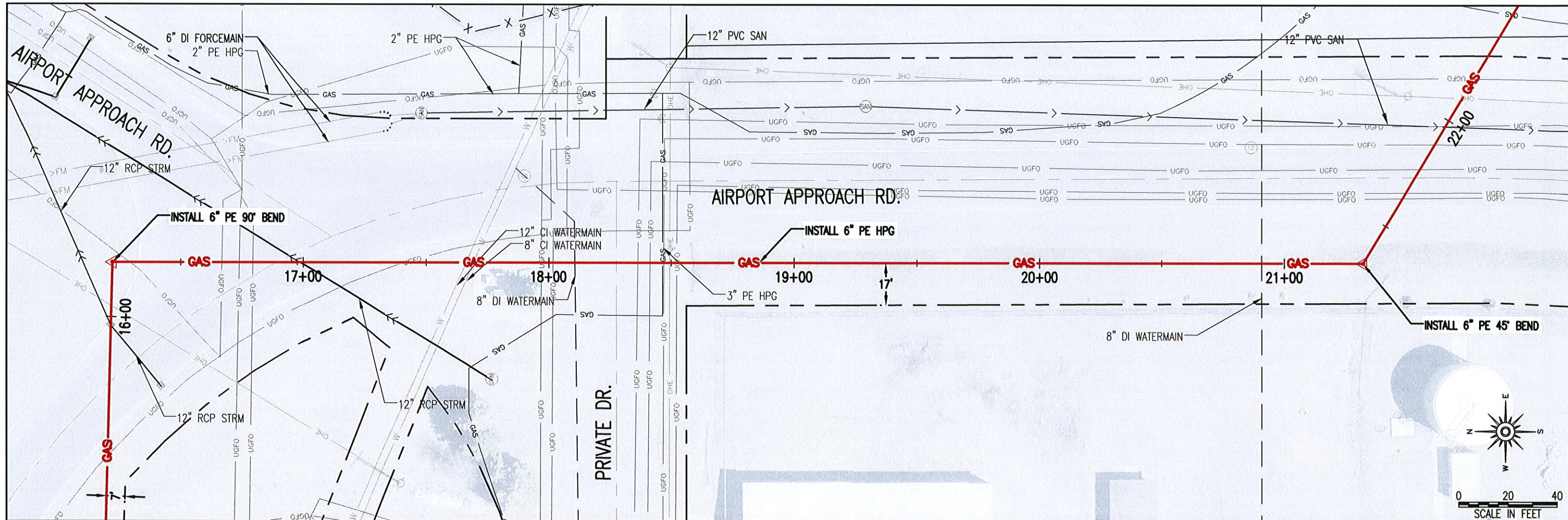
- NOTES:**
- CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS, INCIDENTAL
 - ALL GAS MAIN TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING UNLESS OTHERWISE NOTED IN PROFILE
 - GAS MAIN SHALL HAVE A MINIMUM OF 4' OF COVER FROM STA. 1+00 TO STA. 34+37 AND A MINIMUM OF 3' OF COVER FROM STA. 34+37 TO 73+53



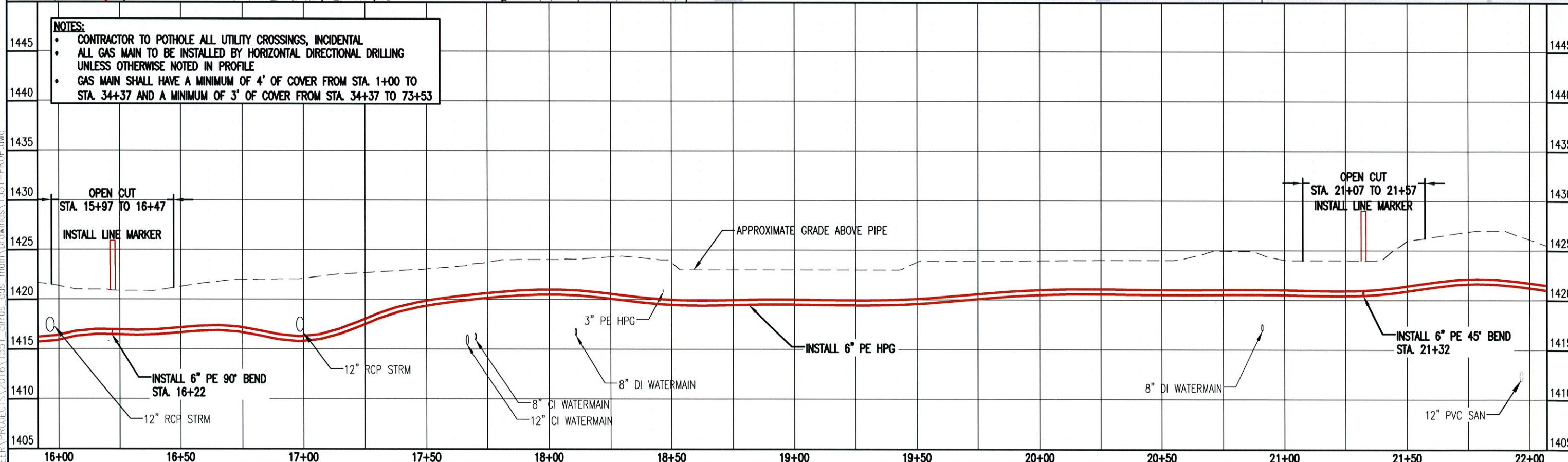
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SIGNATURE: <i>Tim A. Sanders</i>	TIM A. SANDERS, P.E. TYPE NAME	LIC. NO: 50401			CITY PROJECT NO.: 1551	STATE AID PROJECT NO.: N/A	PLAN & PROFILE	
						SHEET NO. 15 OF 26		



- NOTES:**
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SIGNATURE: *Tim A. Sanders*

TIM A. SANDERS, P.E.
TYPE NAME

DATE: JULY 8, 2016

LIC. NO.: 50401



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

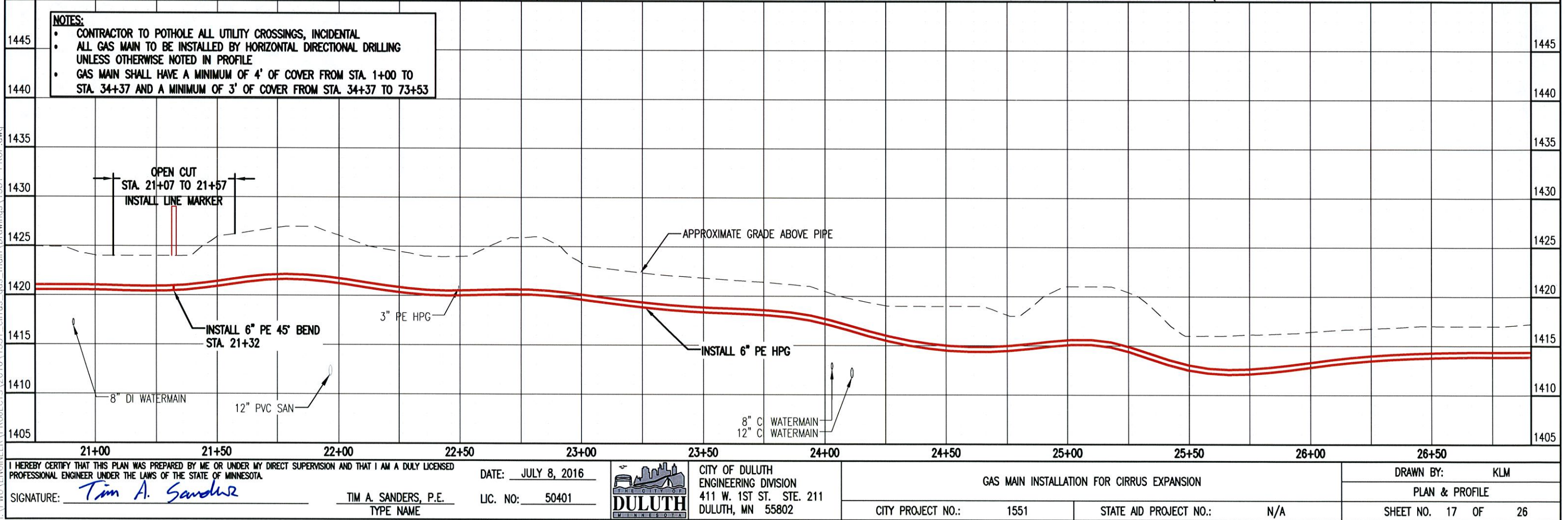
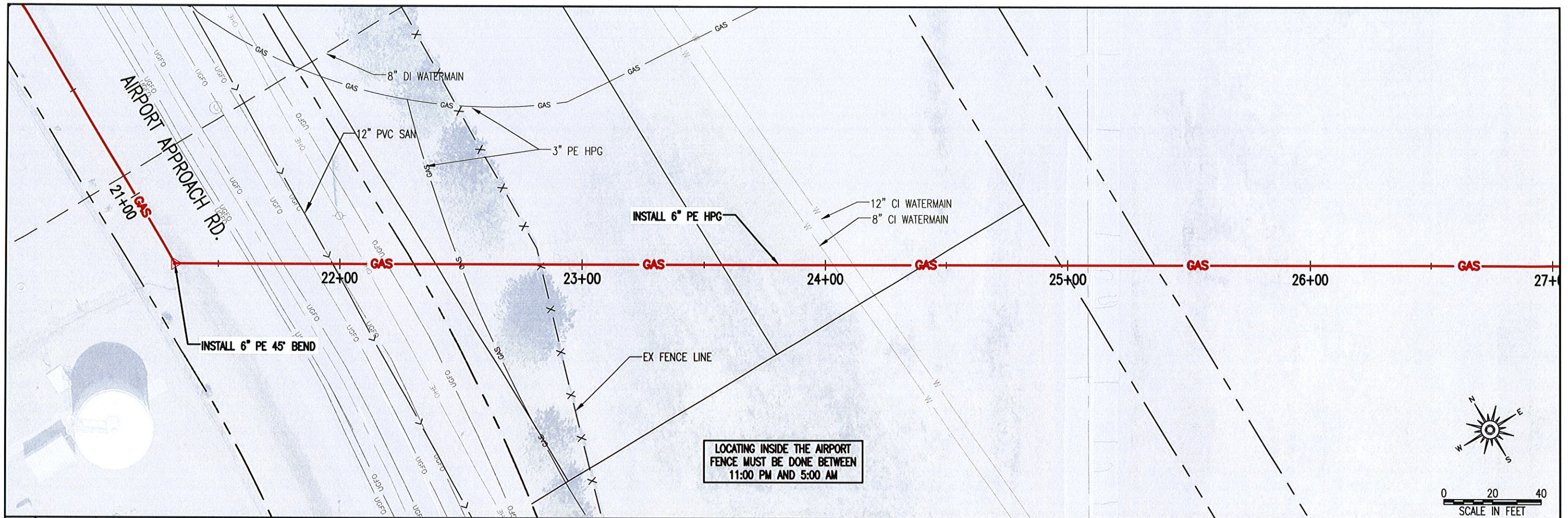
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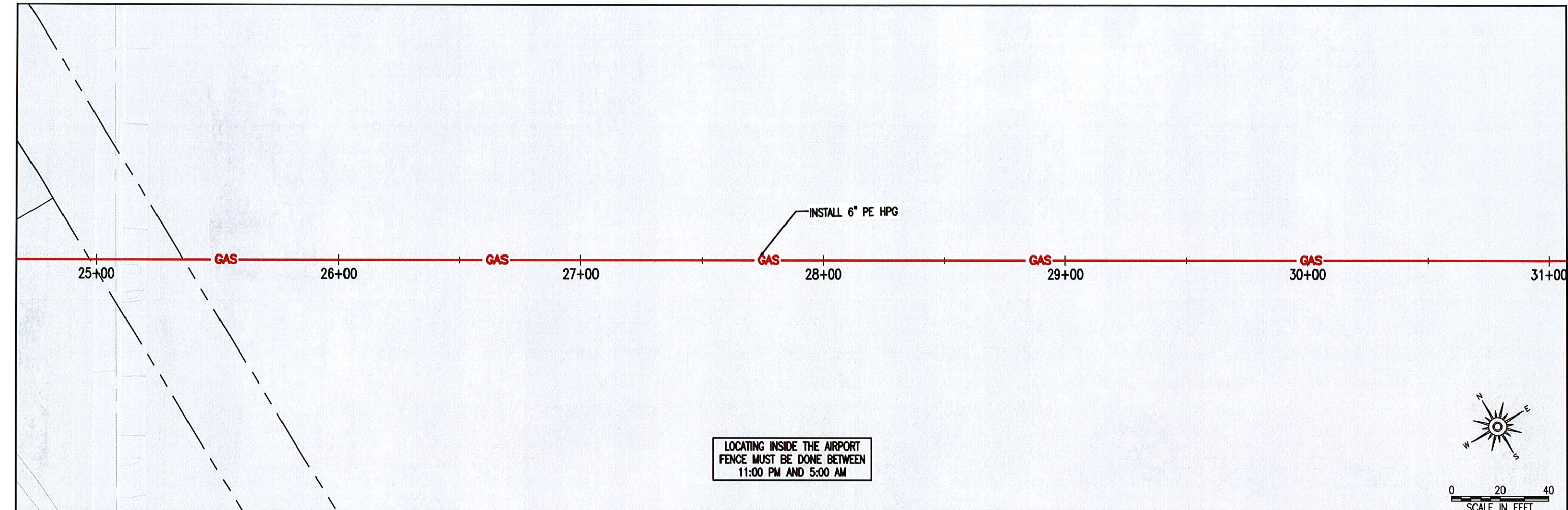
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DRAWN BY: KLM

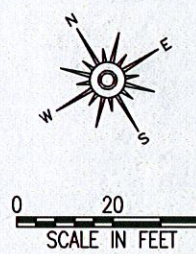
PLAN & PROFILE

SHEET NO. 16 OF 26

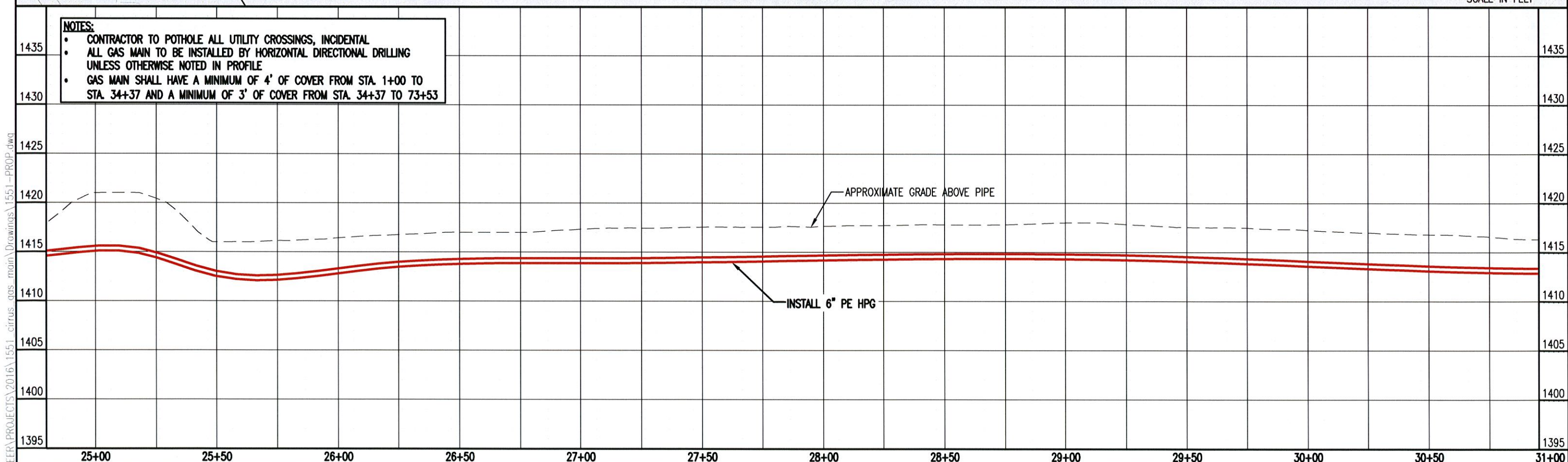




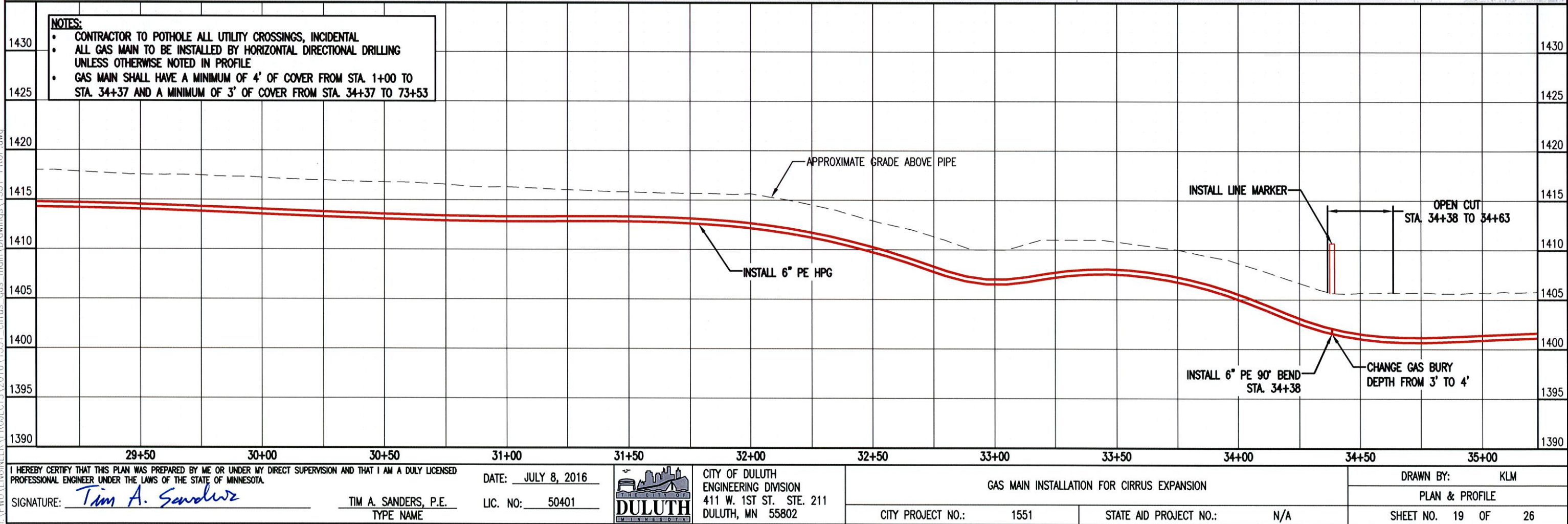
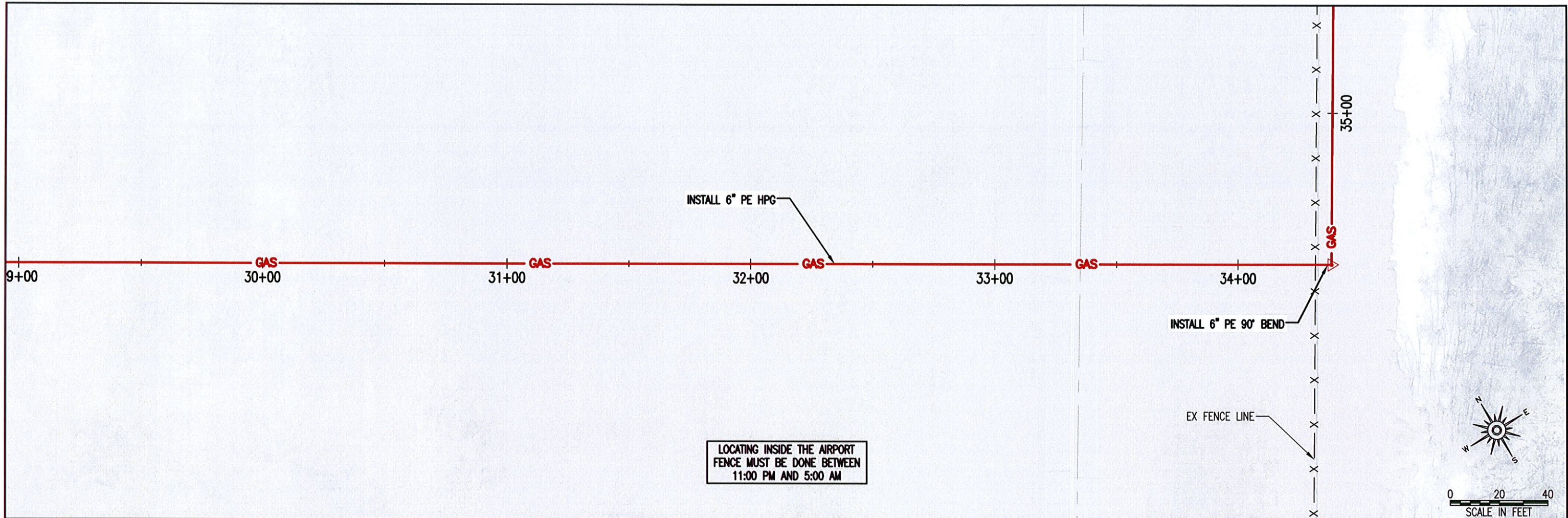
LOCATING INSIDE THE AIRPORT
FENCE MUST BE DONE BETWEEN
11:00 PM AND 5:00 AM



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SIGNATURE: <i>Tim A. Sanders</i>	TIM A. SANDERS, P.E. TYPE NAME	LIC. NO: 50401			CITY PROJECT NO.: 1551	STATE AID PROJECT NO.: N/A	PLAN & PROFILE	
							SHEET NO. 18 OF 26	



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SIGNATURE: Tim A. Sanders

TIM A. SANDERS, P.E.
TYPE NAME

DATE: JULY 8, 2016

LIC. NO.: 50401



CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

GAS MAIN INSTALLATION FOR CIRRUS EXPANSION

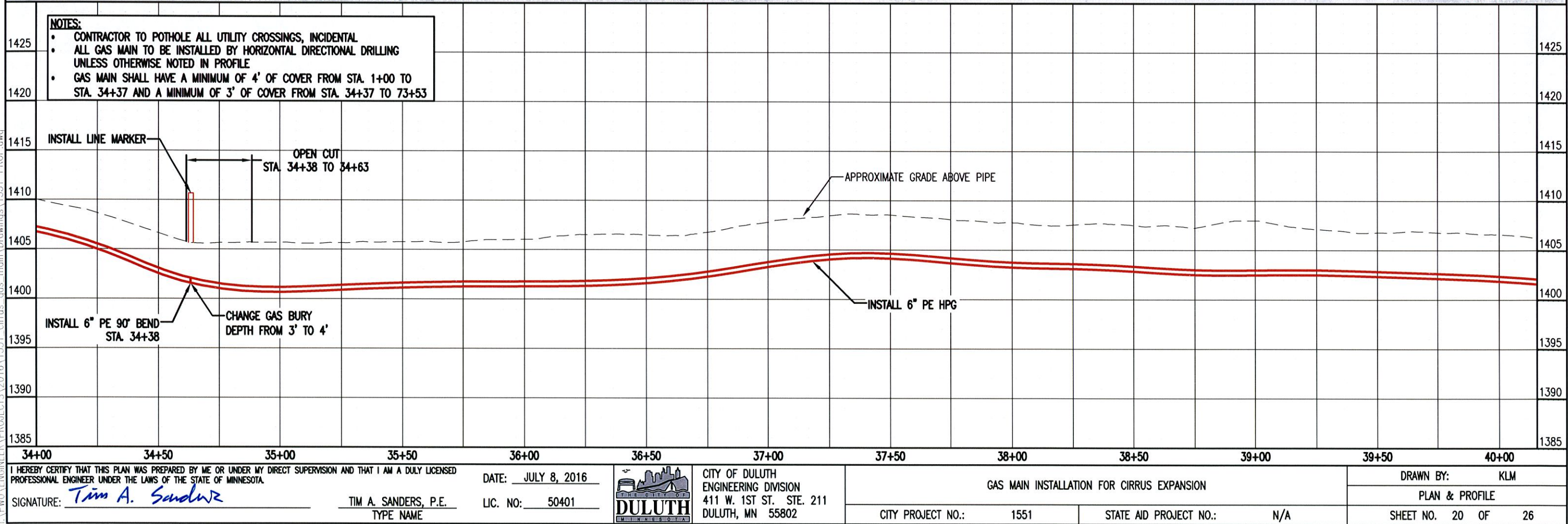
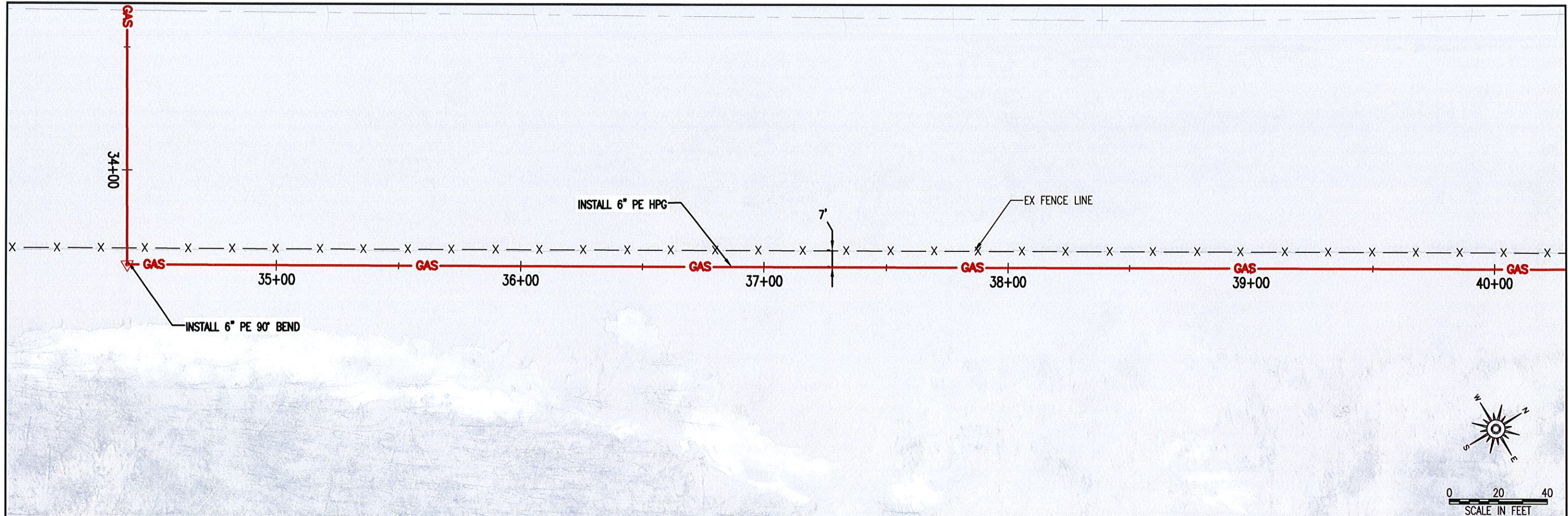
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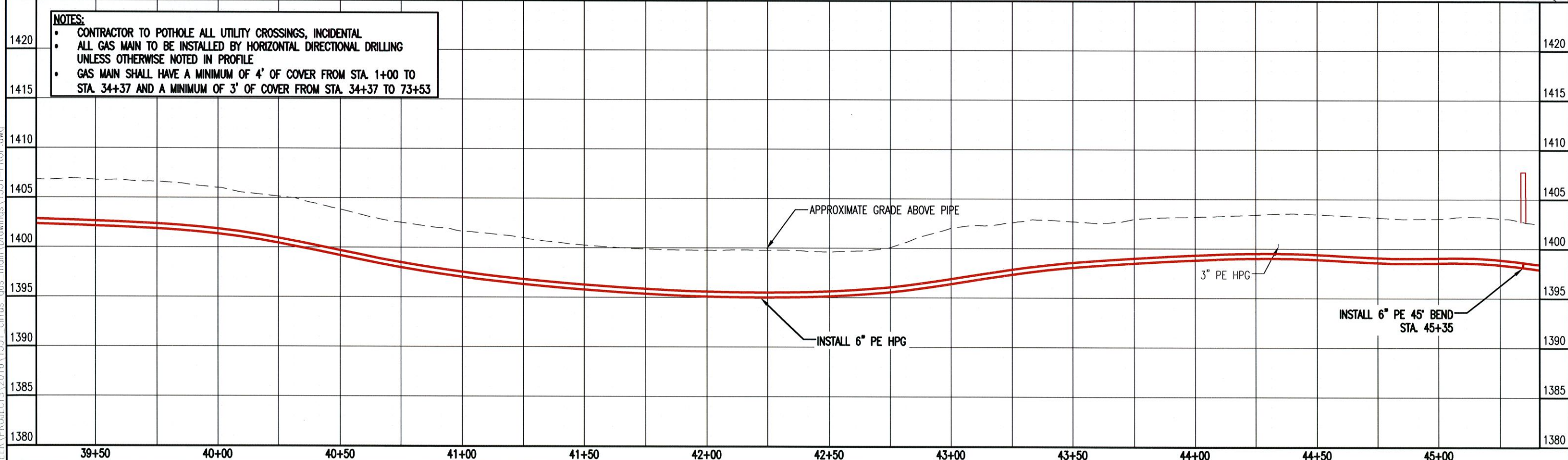
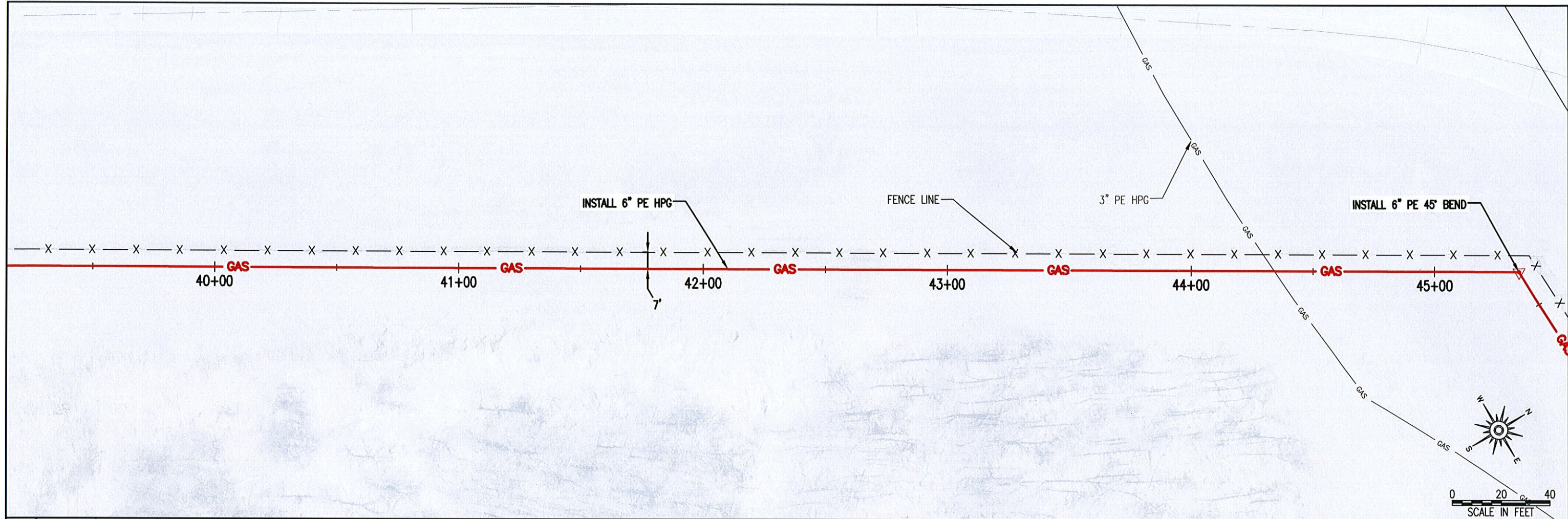
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DRAWN BY: KLM

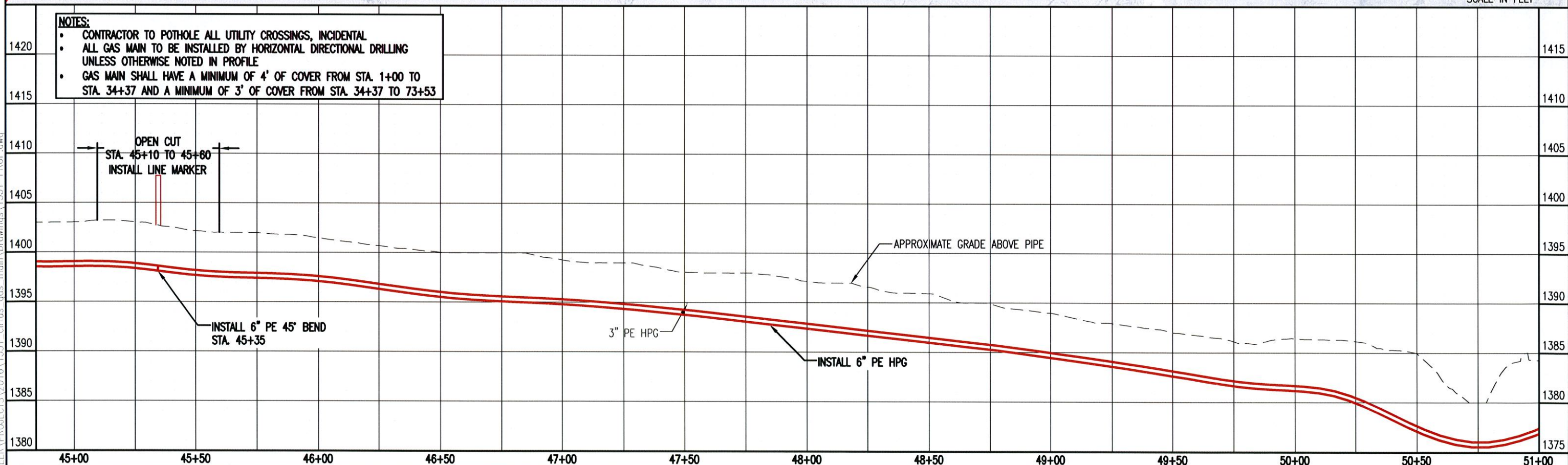
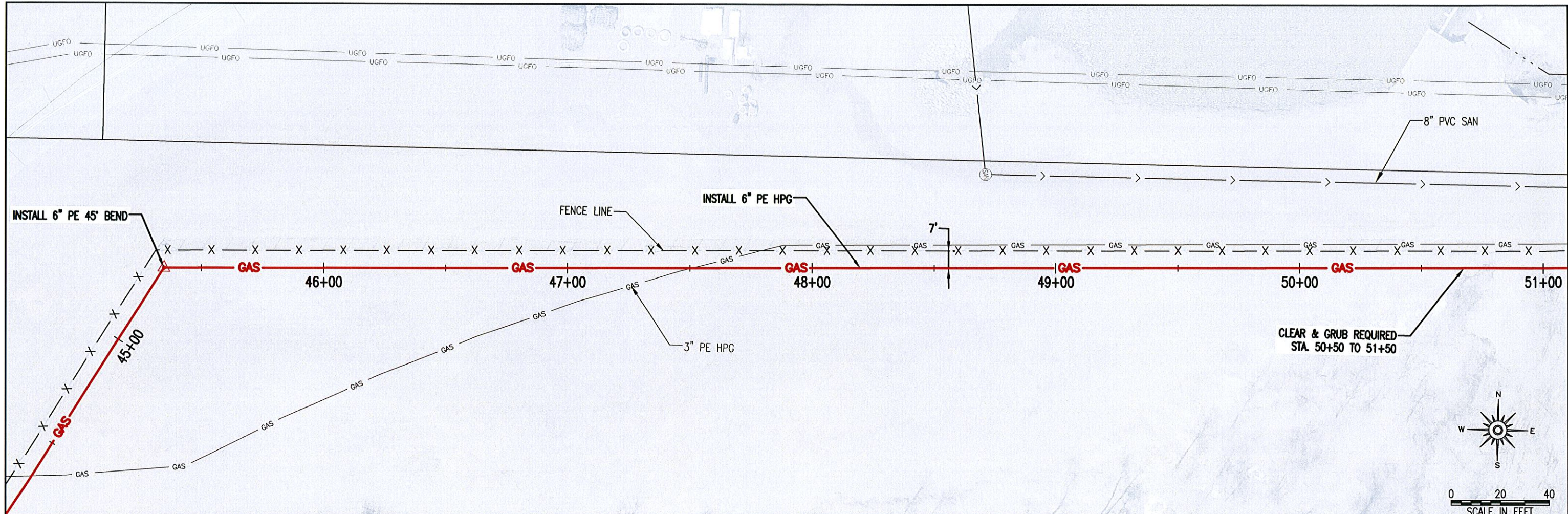
PLAN & PROFILE

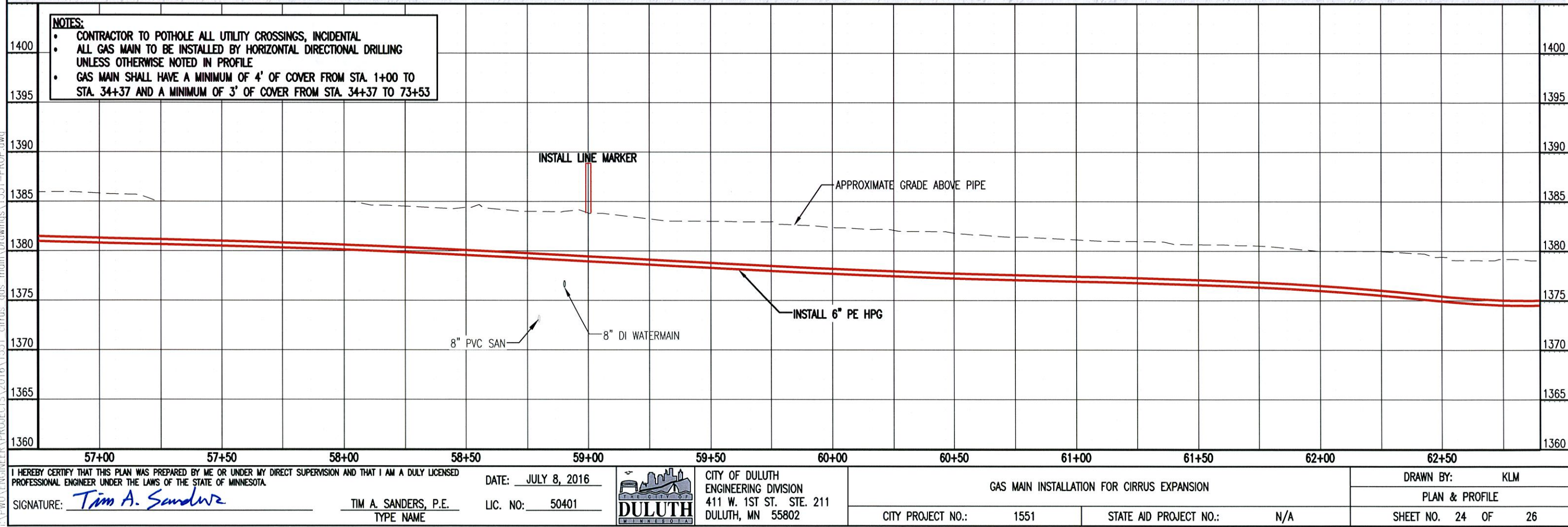
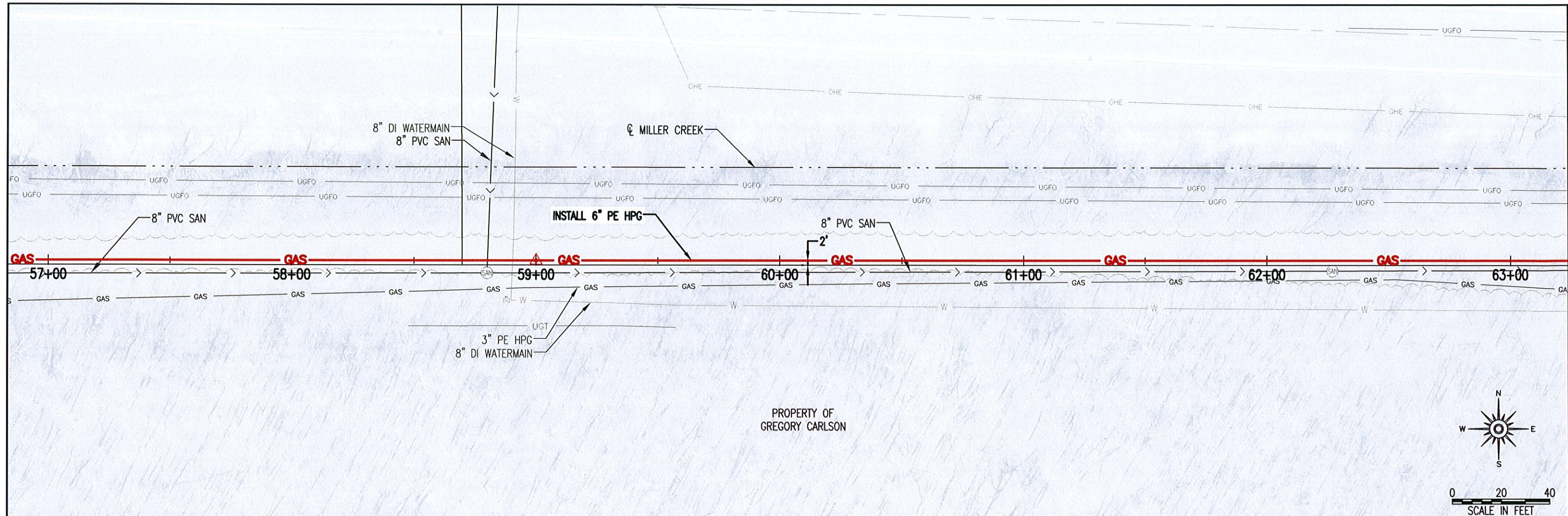
SHEET NO. 19 OF 26

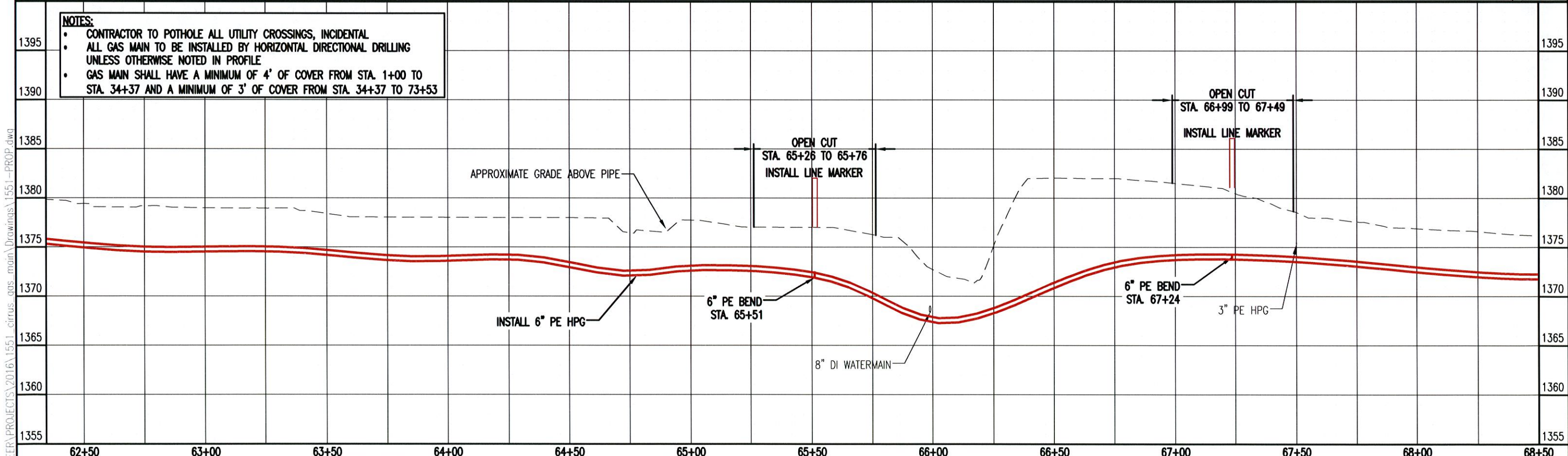
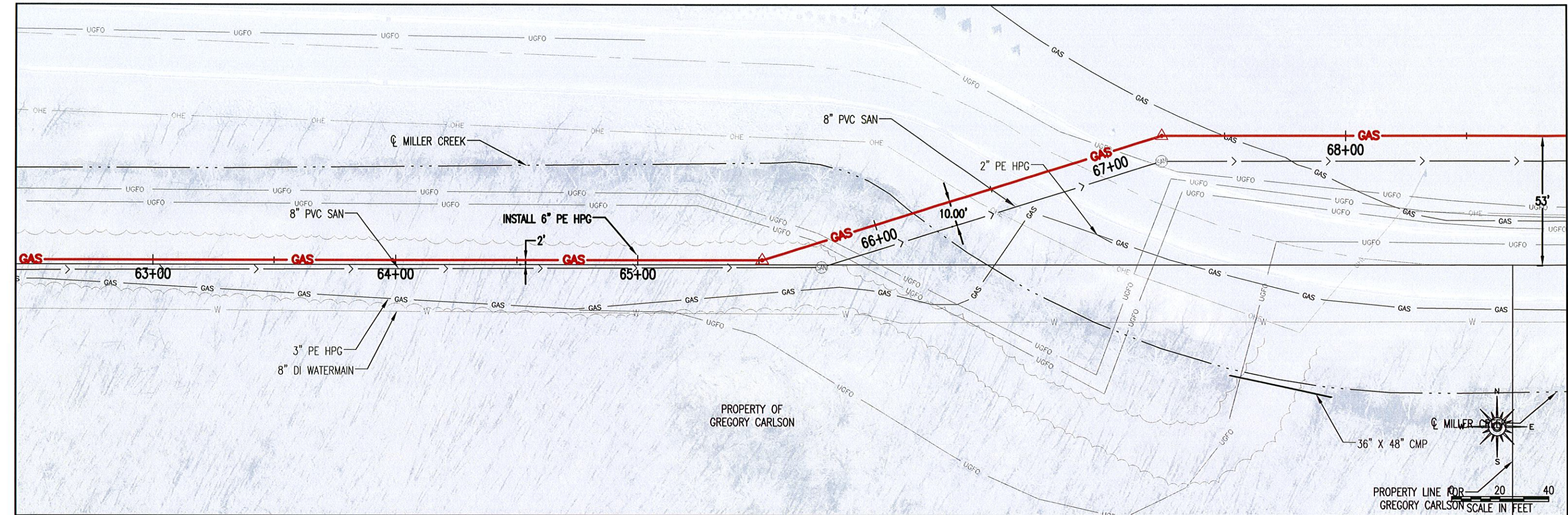





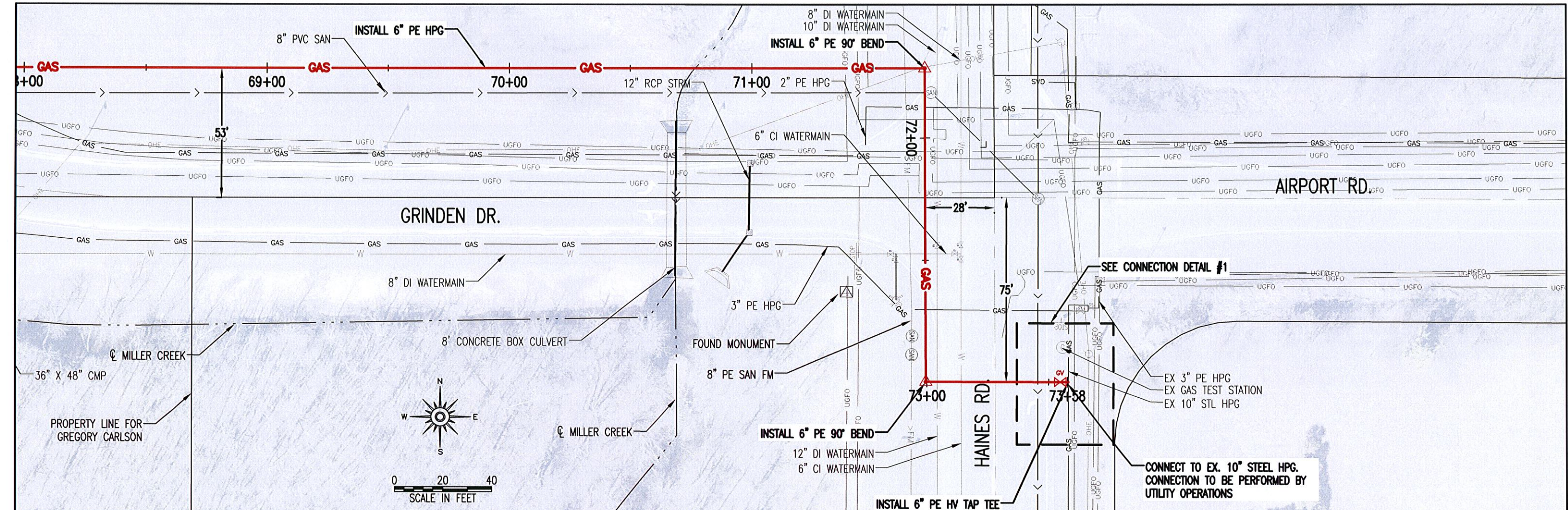
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SIGNATURE: <i>Tim A. Sanders</i>	TIM A. SANDERS, P.E. TYPE NAME	LIC. NO: 50401		CITY PROJECT NO.: 1551	STATE AID PROJECT NO.: N/A	PLAN & PROFILE SHEET NO. 21 OF 26			



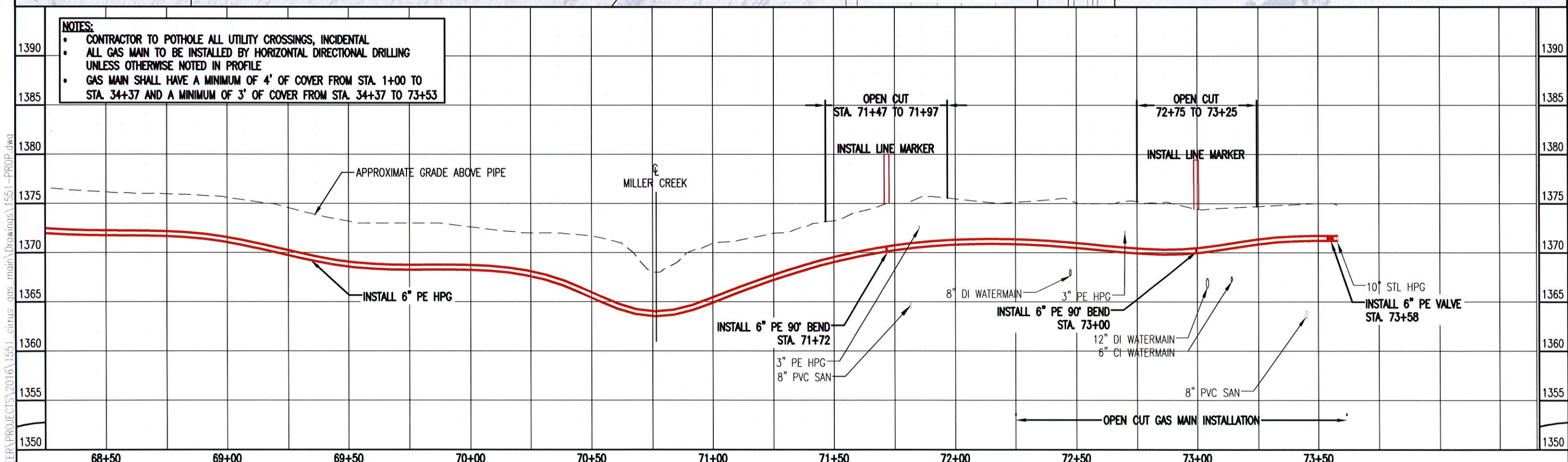





NOTES: <ul style="list-style-type: none">CONTRACTOR TO POT HOLE ALL UTILITY CROSSINGS, INCIDENTALALL GAS MAIN TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING UNLESS OTHERWISE NOTED IN PROFILEGAS MAIN SHALL HAVE A MINIMUM OF 4' OF COVER FROM STA. 1+00 TO STA. 34+37 AND A MINIMUM OF 3' OF COVER FROM STA. 34+37 TO 73+53			
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SIGNATURE: <i>Tim A. Sanders</i>	TIM A. SANDERS, P.E. TYPE NAME	LIC. NO.: 50401	
		CITY OF DULUTH ENGINEERING DIVISION 411 W. 1ST ST. STE. 211 DULUTH, MN 55802	
CITY PROJECT NO.: 1551		STATE AID PROJECT NO.: N/A	
GAS MAIN INSTALLATION FOR CIRRUS EXPANSION		DRAWN BY: KLM	
PLAN & PROFILE		SHEET NO. 25 OF 26	



- NOTES:**
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SIGNATURE: <i>Tim A. Sanders</i>	TIM A. SANDERS, P.E. TYPE NAME	LIC. NO.: 50401			CITY PROJECT NO.: 1551	STATE AID PROJECT NO.: N/A	PLAN & PROFILE	
					SHEET NO. 26 OF 26			